VIDEO-BASED REFLECTION OF BEGINNING TEACHERS:

AN INDUCTION STRATEGY TO PROMOTE TEACHING EFFICACY

by
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Abstract

This study proposes and evaluates a video-based induction strategy comprised of reflective, analytical processes meant to support positive teaching efficacy of beginning teachers. The problem of inadequate induction is explored through a literature review that examines the concept of teacher induction with a constructivist theoretical perspective focusing on the process of developing teaching proficiency. The problem of practice is examined through a needs assessment conducted in a school district to develop a contextual understanding. The findings from both the needs assessment and literature review pointed to a greater need to support teaching efficacy as a means to support teacher development and thus performance. The intervention treatment, video-based reflection of the teaching practice of the beginning teacher, is studied through a mixed methods approach using a qualitative post-treatment interview and the Teachers' Sense of Efficacy scale (Tschannen-Moran & Woolfolk Hoy, 2001). Findings suggest a positive impact on the teachers' sense of efficacy in instructional strategies and self-reported impacts in instructional practice, student engagement, confidence, and reflective practices.

Keywords: induction, beginning teacher, development, teaching proficiency, video, reflection, efficacy, instructional strategies, student engagement

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Appendix I: Dissertation Defense Signature Form (July 1 2016)

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Table of Contents

List of Tables

Chapter One: Executive Summary

"I graduated from college in August. It was a very fast transition…as somebody who is transitioning from student to teacher, you are now the adult in the room, and I question myself," confided a beginning teacher. This transition from being a student to being a teacher marks a critical period of growth and development in a beginning teacher's career (Clotfelter, Ladd, & Vigdor, 2007; Grissmer, Flanagan, Kawata, & Williamson, 2000). The unfamiliar reality of managing one's own classroom creates a motivation for learning driven by survival and dilemmas (Feiman-Nemser, 2010). Along with acclimating to new roles and responsibilities, beginning teachers often report feeling unprepared for specific aspects of teaching, including classroom management, parent communication, and working with children with special needs (Le Maistre & Pare, 2010).

Developing Teaching Proficiency through Induction

Teaching is a combination of complex tasks, requiring both procedural and higher order knowledge (Knight, 2002). Both types of knowledge are needed to build expertise in decision-making in complex and novel situations, a necessity for classroom teaching (Knight, 2002). To address the needs of beginning teachers, districts and schools offer induction support, which ideally help "teachers learn to apply the theory and knowledge acquired in pre-service to the day-to-day practice of teaching" (Moir et al., 2010, p. 29). From a constructivist perspective, beginning teachers complete the process of learning by applying new understandings based on their current context and informed by the application of their prior theoretical and foundational knowledge. The act of examining and refining teaching practice is itself considered a complex task requiring the application and transfer of both procedural and higher order knowledge.

The process of developing teaching expertise can be articulated through a five stage model of skills acquisition (Dreyfus & Dreyfus, 1980). The first stage, represented by the induction period, is characterized by the novice or beginning teacher's struggle to effectively apply abstract and theoretical knowledge in diverse situations due to lack of experience. Problem-solving is a key area in which beginning teachers often struggle because of the lack of experience to inform their decision-making processes (Le Maistre & Pare, 2010). As the beginning teacher progresses through the second stage, experience and practice lead to greater situational understanding and improved decision-making (Dreyfus & Dreyfus, 1980). . As teachers continue the progression through the next three stages, ultimately arriving at the fifth stage, they begin to demonstrate competence through a holistic understanding and recognition of complex, interrelated dynamics of the classroom with greater flexibility and ease in intuitively making decisions until in the fifth and final expert stage, analysis and decision-making occurs automatically without conscious monitoring. This model provides an understanding of how support and guidance may be focused and designed to help beginning teachers gain experience and assistance in reflecting on decision-making and identifying and analyzing perspectives to accelerate their progression on the continuum towards expertise.

Historically, induction programs have focused on aspects of orientation, preparation, and practice (Serpell & Bozeman, 1999). Induction programs vary from low-intensity support, often involving the pairing of a beginning teacher with a veteran teacher to more comprehensive programs include formal mentoring and other support components, such as collaboration and administrator support (Smith & Ingersoll, 2004; Glazerman, Isenberg, Dolfin, Bleeker, Johnson, Grider, & Jacobus, 2010). Because orientation and preparation dominate the focus during the

initial year of teaching, there is often limited time for and attention paid to instructional practice to support the development of teaching proficiency.

Problem of Practice

Because of the complex nature of teaching and the developmental nature of acquiring teaching proficiency, beginning teachers need induction support to assist them in applying the theoretical knowledge gained in their pre-service education programs, and yet many induction programs are designed to focus on procedural knowledge and not on instructional practice. This study is situated in a large, suburban school district in the southeastern part of the United States. The district consistently hires an average of 200 beginning teachers a year.

Role of Researcher

As the researcher, I have a role within the study as well as a role within the organization. I am the director of the professional development office in the public school district. As the director, I oversee the induction program, which includes an orientation for beginning teachers, a mentoring program in which beginning teachers are assigned a school-based mentor for their first year of teaching, and differentiated professional learning activities. While I do not provide direct support to beginning teachers, I do participate in planning and evaluating induction support. I do not have a role in the evaluation of teachers, which lessens the coercive risk as a researcher in this study.

Needs Assessment

In order to understand the needs of beginning teachers in the district and identify gaps in induction support, a needs assessment was conducted. The research design for this assessment had two components: interviews with principals and a voluntary survey of beginning teachers conducted during the spring of their first year of teaching. Through these processes, data was

collected to inform an understanding of the local district's support gaps during teachers' first year.

Findings. While principals were consistent in identifying instructional planning as the greatest area of weakness for new teachers, there was no consistent area of need found among the responses from beginning teachers. The lack of a consistent response was reinforced by principals' conclusion that their beginning teachers' needs varied, and they often needed direction to identify focus areas for learning and improvement. Reinforcing the developmental model of acquiring proficiency, principals noted that teachers did not lack pedagogical strategies but lacked experience to know how and when to use all of the strategies learned from their pre-service education programs.

When asked about current professional learning activities, three themes emerged from comments of beginning teachers:

1. The workshop topics were not always seen as relevant.
2. The workshops were not always timely in terms of providing the topic when teachers perceived they most needed it.
3. The workshop sessions were not customized or differentiated to the individual teachers' needs.

In summary, the needs assessment revealed that there was not a specific, defined need area for an intervention, and both administrators and teachers emphasized that the needs of beginning teachers vary and are best addressed individually through focused job-embedded practice and supported reflection.

Purpose of the Study

The purpose of the study was to identify and evaluate an intervention strategy that would improve induction support for the district's beginning teachers. There was a demonstrated need in the targeted school division for attention to the support of beginning teachers; both principals and teachers reported a disconnect between the current program of induction support and the needs of beginning teachers. The needs assessment indicated that the challenge was not in addressing a specific skill deficit area, so a different approach to strengthening induction was necessary.

When considering the importance of early career support, a constructivist theoretical perspective provides an understanding of how beginning teachers' theoretical knowledge can be utilized to develop proficiency. Beginning teachers bring to their first classroom experience an array of experiences and knowledge from pre-service and teacher preparatory programs. An induction strategy was developed to integrate a focus on mastery experiences to foster feelings of success and a positive sense of teaching efficacy. Self-efficacy is a driver of behavior outcomes (Bandura, 1977). For beginning teachers, their sense of efficacy influences their efforts to try new strategies, persist despite failure, and continue to grow and develop as proficient teachers (Gibson & Dembo, 1984).

Significance of the Study

Beginning teachers' feelings of success, shaped by their experiences and perceptions, not only influence persistence, which contributes to the likelihood of continued improvement, but also is strong predictors of whether they will stay in teaching (Birkeland & Johnson, 2002). Feelings of satisfaction reinforces their commitment to the profession and is directly related to their perceptions of themselves as effective teachers (Birkeland & Johnson, 2002). During the

course of the first year in the classroom, Clark (2009) reported that beginning teachers, at the end of the first year, reported a lower sense of efficacy from the levels reported as pre-service teachers at the end of their teacher preparatory program. This decline in efficacy suggests that experiences during the first year of teaching negatively impact beginning teachers' perceptions of their abilities, potentially impacting future performance and confidence to improve and take risks. This decline in efficacy provides a compelling reason for supporting beginning teachers' confidence with positive implications for both retention and development of teaching proficiency.

Treatment Intervention

The selected intervention was an induction strategy incorporating guided reflection and observation of the beginning teacher's own practice using videotaped segments of his or her instruction. This strategy was selected based on the hypothesis that guided reflection of videotaped instruction of one's practice will positively affect perceived teaching self-efficacy, which will support continued growth and improvement. The intervention consisted of three components: cycles of videotaped instruction, independent review and note-taking, and a facilitated reflection. The role of the researcher as a facilitator was to encourage reflection beyond a technical observation level to an interpretative and problem-solving level, through questioning that required the teacher to further reflect upon practice. This strategy aligns with the constructivist-oriented mentoring approach that allows the teacher to identify and generate solutions to problems (Richter, Kuntera, Lüdtkea, Klusmanna, Andersa, & Baumerta, 2013). The mastery experience of reviewing, reflecting upon, and analyzing practice aligns with sources found to influence efficacy (Bandura, 1977), and thus supports the hypothesis that this treatment will positively impact the teachers' sense of efficacy.

Participants

The original research plan was to use a randomized experimental design with a minimum of 20 beginning teachers as participants in the study, with 10 in a control group and 10 receiving the treatment intervention. Participation was voluntary and restricted to full-time beginning teachers defined as those with zero years of prior experience. Due to low number of volunteers, the control group was eliminated, and the study was conducted with nine beginning teachers, six of whom completed all components of the treatment.

Evaluation

The mixed-method study addressed the following research questions:

RQ1: To what extent were each of the program components implemented as planned?

RQ2: What impact does video-based reflection have on the teaching efficacy of beginning teachers?

RQ3: What are the participants' perceptions of the impact of the intervention treatment?

The process evaluation, addressed by RQ1, measured the adherence to the treatment protocol as an indicator of fidelity. Because two of the components are completed independently by participating teachers, focusing on adherence to the planned treatment plan was critical as a means to determine fidelity.

The outcome evaluation was addressed by RQ2 and RQ3. The Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) was the instrument used to determine pre and post measures of personal teaching efficacy to address RQ2. The instrument was administered at the beginning and conclusion of the intervention. The results, analyzed using the Wilcoxon signed-rank statistical test, were used to determine the impact of the intervention treatment on teacher efficacy and the three teacher efficacy subscales, instructional strategies,

student engagement, and classroom management (Tschannen-Moran & Woolfolk Hoy, 2001). To strengthen the study in the absence of a control group, this quantitative data collection was complemented by qualitative data collection and analysis of a final summative interview to provide insight into the participants' perceptions of the impact of the intervention treatment.

Findings

The process evaluation focused on RQ1 to determine the extent to which each of the program components was implemented as planned. Six of the participants adhered to the program components at a high rate of fidelity, completing each component the required number of times. Technical issues and time challenges prevented three of the participants from completing the six cycles of the intervention treatment.

The outcome of the treatment was addressed by RQ2 and RQ3. The results from the pre and post administration of the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001 addressed the research question: What impact does video-based reflection have on the teaching efficacy of beginning teachers? The six participants in the study who completed all components of the study with high fidelity did not show an effect of the intervention in the Teachers' Sense of Efficacy scale in terms of their overall efficacy, efficacy in classroom management, or efficacy in student engagement. There was an effect shown in efficacy in instructional practices, which was also a dominant theme of participants' own perceptions of the impact of the study. During the post-treatment interview, all participants, with the exception of one, agreed that the treatment intervention had helped them as beginning teachers. Their responses revealed four areas of impact: instructional practice, student engagement, confidence, and reflection.

Findings suggest that video-based reflection might be a valuable induction strategy to assist beginning teachers in bridging the gap from theoretical knowledge to application. Supporting beginning teachers' confidence and ability to reflect on their practice has positive implications for both retention and acceleration of development of teaching proficiency.

Chapter Two: Introduction to the Problem of Practice

The term teacher induction has multiple but interconnected meanings in education. First, induction may refer to the early career of a teacher, specifically the "unique phase of learning to teach" (Feiman-Nemser, 2010, p. 15). This period of a teacher's career is characterized by a learning agenda distinct from that which occurs under the secure supervision of a teacher education program. Teacher education programs are, to an extent, directed by state policy guidelines with including the incorporation of student teaching and methods-related courses (Ronfeldt, Schwartz, & Jacob, 2014). The supervised preservice experience is a contrast to the unfamiliar reality of managing one's own classroom creating learning needs for new teachers driven by survival and dilemmas (Feiman-Nemser, 2010).

A second meaning of induction refers to the process of socialization into the profession and the context of the organization and school that impacts the development of a beginning teacher's identity, practice, and career (Feiman-Nemser, 2010). The third and most common meaning of induction is a formal program for beginning teachers. It should be noted that teachers will experience a period of development and be socialized into the profession regardless of whether there is a formal program of support (Moir, Barlin, Gless, & Miles, 2010). Strengthening a formal program of induction is the focus of this study.

The Importance of Early Career Support

Researchers and policy makers agree that teacher quality matters. Teacher experience, which has implications in terms of hiring, assignment, and retention of teachers, is one characteristic that has been shown to have a positive relationship to student achievement (Grissmer et al, 2000). This relationship has not been found significant after the first two to five

years, which suggests a necessary period of growth and improvement by beginning teachers (Clotfelter, Ladd, & Vigdor, 2007; Grissmer et al., 2000).

Many new teachers report feeling unprepared for specific aspects of teaching, including classroom management, parent communication, and working with students with special needs (Le Maistre & Pare, 2010). Sabar (2004) indicated that a lack of professional confidence further hinders the effectiveness of beginning teachers and contributes to a sense of isolation and frustration. Le Maistre and Pare (2010) noted a teacher's description of the isolation of being a beginning teacher. The teacher shared that "you don't necessarily feel like you can go to them if you're having a problem because in some way, you are going to lose credibility with them. It makes it difficult if you need help" (Le Maistre & Pare, 2010, p. 560).

As beginning teachers develop, practice, and apply skills, their feelings of success shape their sense of efficacy and are a strong predictor of whether they will stay in teaching (Birkeland & Johnson, 2002; Hong, 2012). The satisfaction that teachers derive from teaching, and thus their commitment to the profession, is directly related to their belief that they are effective teachers (Birkeland & Johnson, 2002). Pre-service teachers reported a higher sense of efficacy at the end of their teacher preparatory programs than novice teachers at the conclusion of their first year of teaching (Chester & Beaudin, 1996; Clark, 2009). This decline in efficacy indicates that experiences during the first year of teaching had a negative impact on beginning teachers' feelings of success.

This need to feel successful and its relationship to satisfaction suggests the importance of the development of proficiency during the induction period and the critical role induction programs may play to support and foster the development of effective teaching strategies. To better understand the needs of beginning teachers and how induction programs can address those

needs, I will discuss the process by which teachers develop proficiency and how induction programs support beginning teachers. Through this review of the literature, I will show how traditional induction support may be misaligned with the developmental nature of gaining expertise in the complex profession of teaching. To provide a theoretical context for this review, I will first provide an overview of constructivist theory, a learning theory that provides insight into how teachers might learn and apply their learning in their instructional practice.

Theoretical Framework

Constructivist learning theory provides a theoretical framework through which the learning processes of beginning teachers can be explored. The common element of all variations of constructivist theories is the metaphor of construction, with the learner constructing or creating meaning based on interactions between their pre-existing understanding and direct experiences with the environment (Ernest, 2010). Constructivist learning strategies include tasks involving authentic, real world situations; modeling and coaching; collaborative learning through interaction with multiple perspectives; and social negotiation through debate and discussion (Ertmer & Newby, 1993). Von Glaserfeld (2005) summarized the foundation of constructivism with the statement that "learning is a constructivist activity that students themselves have to carry out," and he argued that the task of the educator is not to dispense knowledge but to provide students with opportunities and incentives to build it up (p. 7). As teachers begin their professional career, they learn by applying prior knowledge from their pre-service education programs as well as their own experiences as students.

When considering the importance of early career support, a constructivist theoretical perspective provides an understanding of how beginning teachers' theoretical knowledge can be utilized to develop proficiency. Beginning teachers bring to their first classroom experience an

array of experiences and knowledge from pre-service and teacher preparatory programs. According to constructivist theoretical perspectives, induction support strategies should focus on providing opportunities for teachers to build on prior knowledge through authentic experiences.

Review of the Literature

In this section, I review literature that frames the process in which beginning teachers develop proficiency and further examine induction as a means of supporting beginning teacher growth. In this discussion, I will apply a constructivist theoretical perspective to both the developmental nature of proficiency and the learning design of induction strategies.

Development of Teaching Proficiency

In order to understand how teachers develop teaching proficiency, it is beneficial to first consider the concept of knowledge as applied to teaching. From a broad perspective, Knight (2002) suggested that there are two categories of knowledge: procedural or practical knowledge, characterized by routinized activity, and higher order knowledge, characterized by sense-making and meaning. Professional work involves both types of knowledge, and both types of knowledge are also needed to build expertise in decision-making in complex and novel situations, a necessity for classroom teaching (Knight, 2002).

Ertmer and Newby (1993) described the necessity of application of "advanced knowledge in ill-structured domains" and further suggested that a constructivist approach allows learners to explore complex topics that will support growth and movement from novice to more expert thinking and analysis (p. 65). Examining and refining teaching practice can be considered a complex task requiring the application and transfer of both procedural and higher order knowledge.

Because of the complex nature of teaching and the focus on application of knowledge in decision-making, Knight (2002) theorized that in order to improve teaching performance and develop proficiency, the central goal of professional development should be daily practice that focuses on improvement through relevant and authentic problem-solving. By applying the concept of constructivism to teacher learning, a model of professional learning can be developed in which teachers learn through the context of their daily practice, explore ill-structured problems, collaborate, revise, and develop new understandings. As beginning teachers gain experience, the transition from focusing solely on developing routine procedural knowledge to the application of reflective and analytical processes to solve complex problems and improve practice is experienced. This transition must be supported during the induction period.

Induction reflects the developmental nature of acquiring proficiency in teaching. During the induction phase of teacher development, "teachers learn to apply the theory and knowledge acquired in pre-service to the day-to-day practice of teaching" (Moir et al., 2010, p. 29). Building upon Knight's (2002) conception of teaching knowledge, Alexander, Shallert, and Reynolds (2009) define learning as a process that is considered complete with the resulting change upon the learner in terms of perceptions and responses. In the case of beginning teachers, learning begins in the pre-service education program with the acquisition of theoretical and foundational knowledge, but it may not result in implementation and change in practice, beliefs, and attitudes until that beginning teacher enters the classroom and completes the learning process through the application of acquired knowledge and skills. From the constructivist perspective, beginning teachers complete the learning process through the application of new understandings based on their current context and informed by the application of their prior theoretical and foundational knowledge.

The developmental period of induction can be articulated through a five-stage model of skills acquisition. This model has been applied to careers, such as nursing and teaching, which require the implementation of complex skills and decision-making (Dreyfus & Dreyfus, 1980). Applied to education, the first stage is represented by the novice or beginning teacher, who has abstract and theoretical knowledge but lacks the experience to effectively apply that knowledge in diverse situations. As practice occurs during the second stage, the advanced beginner starts to recognize patterns that help develop the situational understanding that guides decision-making. Through further experience in the third stage, the competent teacher develops a holistic understanding of the interplay of factors that impact processes and can better analyze situations. A proficient teacher in the fourth stage has extensive experience and begins to intuitively make decisions without needing time to consciously analyze situations and perspectives. In stage five, the expert stage, the teacher is completely absorbed in performance and can intuitively analyze and make decisions without conscious monitoring. This model provides an understanding of how support and guidance may be focused and designed to help beginning teachers gain experience and assistance in reflecting on experiences through the analysis of perspectives and decision-making to further accelerate their learning and growth. For example, Dreyfus & Dreyfus's (1980) stages of development can be applied to further an understanding of teacher perceptions of the classroom dynamics that inform effective problem-solving and decision-making. Problem solving is a key area in which beginning teachers tend to struggle because of the number and complexity of decisions they are faced with during instruction without the benefit of experience to inform their decision-making processes (Le Maistre & Pare, 2010).

Further supporting distinctions observed in teachers at different developmental levels, Sabers, Cushing, and Berliner (1991) found that when teachers reviewed video of classrooms,

there were distinctive differences in the types of observations that novice teachers made as compared to the observations made by those considered expert teachers. Novice and advanced beginners tended to limit comments to observable descriptions of the actions of the teacher and students and did not provide interpretation of classroom management or instructional content. Expert teachers provided analytical commentary that explored the context of the classroom, including how teacher behavior, as evidenced through actions, attitudes, and decisions, affects student behavior. These expert teachers have developed schema that provide them with an understanding of procedural knowledge of classroom events as well as higher order principles of effective classroom teaching (Peterson & Comeaux, 1987). The knowledge frameworks developed over time allow experts to not only recall events, but also to analyze them in problem-solving situations.

Beginning teachers' underdeveloped schema impacts problem-solving and flexibility to respond in varying contexts and often results in surprise and frustrations. Borko and Livingston (1989) used the metaphor of theater with improvisational performance to describe expert teachers and by comparison suggesting beginning teachers' behavior more closely mimics scripted performance. The expert teachers spontaneously modified plans in response to student feedback, while beginning teachers reported being unable to predict when students might struggle and sometimes stopped instruction when students responded in surprising and challenging ways because they did not know how to modify instructional plans in the moment (Borko & Livingston, 1989).

Interviews with beginning teachers revealed that despite feeling armed with instructional strategies from their teacher education program, they experienced a discrepancy between their expectations and the reality that they find when applying what they have learned (McCann &

Johannessen, 2004). One beginning teacher reported feeling confused and frustrated when classroom management strategies that she expected to implement with success failed (McCann & Johannessen, 2004). While these less successful experiences would be expected as part of the developmental learning process, the resulting feelings can lead beginning teachers to question themselves and experience anxiety about their ability to teach the way that they were prepared to teach.

The developmental nature of acquiring teaching proficiency suggests that beginning teachers need support in learning to reflect on their practice from multiple perspectives in order to gain flexibility and fluidity in decision making. Rather than solely focusing on procedural knowledge, a focus on higher order knowledge will allow beginning teachers to gain perspective and learn to adjust in the moment when their expectations do not mirror the reality of the classroom setting. In the next section, specific strategies for supporting beginning teachers will be discussed and connected to the development of expertise in teaching.

Supporting Beginning Teacher Development

The distinction between the focus of pre-service and in-service education centers on the application and integration of knowledge in the context of actual practice. Ball and Cohen (1999) term this process as "learning in and from practice" (p.10). An individual inquiry approach to learning and improvement must embed prerequisite skills that teachers would need in order to maximize their learning from practice. First, teachers need to be able to assess student learning and classroom dynamics from moment to moment. Second, teachers have to be able to use that evolving information to formulate instructional responses. Finally, teachers need to be able to respond flexibly and experimentally. Mirroring these skill areas, Sabar (2004) recommends that support for beginning teachers focus on helping them learn to constantly monitor their

environment and, more importantly, to develop the ability to interpret what is happening within that environment. The skill areas developed in the process of learning in and from practice, an inquiry cycle of professional learning, are similar to those identified as developmental markers of the Dreyfus and Dreyfus (1980) skill acquisition model, which suggests that beginning teachers would benefit from support and structured guidance in applying this model.

Feiman-Nemser (2001) provides specificity about the critical tasks that beginning teachers must focus on in this process of application and learning in and from practice. In contrast to the learning tasks of pre-service development, the identified tasks for beginning teachers are ones that are developed through application in the context of one's classroom and school. This process of learning by doing, a learner-focused constructivist strategy, focuses on developing an understanding of local curriculum, students, and the school culture and community; designing responsive instruction based on that understanding; applying the basic repertoire of instructional strategies developed during the pre-service period; creating a classroom community; developing a professional identity; and using experiences to learn and grow in a cycle of continuous reflection and inquiry (Feiman-Nemser, 2001).

Feiman-Nemser's (2001) emphasis on a focused cycle of reflection and improvement is echoed by the Virginia Department of Education Teacher Performance Standards and Evaluation Criteria (2011). Accordingly, the standards provide a vision for the profession by defining what teachers should know and be able to do and therefore "establish a foundation upon which all aspects of teacher development from teacher education to induction and ongoing profession development can be aligned" (Virginia Department of Education, 2011, p. 1). These teacher performance standards, found in Appendix A, are used to determine the domains of effective

teaching as a means of assessing teacher proficiency and also may be used to direct the content of professional learning.

Induction support needs to be thought of in the context of a greater understanding of an organization's professional culture. Birkeland and Feinman-Nemser (2012) identified shared understandings that assist in establishing a culture in which induction support and resources can be implemented effectively. First, there should be a common understanding of what good teaching looks like through an articulated model of effective teaching, in this context provided by the Virginia Department of Education Teacher Performance Standards and Evaluation Criteria (2011). Second, the concept of the complexity of teaching and the idea of the developmental nature of teaching proficiency should not just be understood but supported. Next, there should be collective responsibility for the learning of colleagues and students. Finally, the organization must provide for the "serious learning" of teachers through support structures such as mentoring and time for collaboration (Birkeland & Feinman-Nemser, 2012, p.115). The operationalization of these understandings is critical to the effectiveness of induction for beginning teachers and places beginning teacher learning into the social and cultural context of a specific organization. Smith and Ingersoll (2004) identify a vicious cycle that can occur if the school's culture as a learning community is not addressed. In that cycle, high rates of teacher turnover negatively impact the development of a learning community, while at the same time, a lack of community and the subsequent support inherent in that community negatively impacts teacher retention.

These models of beginning teacher support develop expertise in teaching through learning cycles of inquiry and reflection and place importance on providing the social and cultural support of the organization. In the next section, the traditional elements of induction

programs are examined in order to consider how those elements align with the developmental needs of beginning teachers.

Induction Programs

Induction programs typically consist of one or more components, including mentoring programs, group induction activities, and the provision of extra resources and reduced workloads (Smith & Ingersoll, 2004). According to Smith and Ingersoll (2004), induction support and mentoring programs are commonly provided to beginning teachers in the United States. While nearly all beginning teachers may receive induction services, many programs are limited in terms of time and often focus solely on the transition from pre-service to in-service, emphasizing the orientation to the profession rather than the continued growth and development of teaching practice (Feiman-Nemser, 2001; Smith & Ingersoll, 2004).

Historically, induction programs have focused on aspects of orientation, preparation, and practice, and they have often been limited to the first year of teaching (Serpell & Bozeman, 1999). Because orientation and preparation dominate the focus during that first year, there is often limited time for and attention paid to instructional practice and the development of teaching proficiency. In contrast to ongoing cycles of learning found in the models focusing on beginning teacher development discussed in the previous section, formal induction programs may only consist of low-intensity support, often involving the pairing of a beginning teacher with a veteran teacher. More comprehensive programs include formal mentoring and other support components, such as reduced teaching load and collaboration with peers. (Smith & Ingersoll, 2004; Glazerman et al., 2010).

Using data from the national School and Staffing Survey of 1999-2000, Smith and Ingersoll (2004) examined the experiences of a sample of 3,250 beginning teachers to explore

the relationship between induction support and teacher attrition. They focused on three categories of support, which included working with a mentor or master teacher, participating in collaborative or network supports, and transition support such as a reduced teaching load or schedule. The data showed that most beginning teachers received a combination of support components. Some induction activities were found to be more effective than others, with more effective practices including having a mentor from the same content area, collaborating or sharing common planning time with other teachers, and being part of an external network of teachers outside of the school. While using a national data source such as School and Staffing Survey allows for generalizable findings, it does not reveal the details of induction support that would be beneficial in developing an intervention.

A more detailed examination of induction support can be found in a quantitative study funded by the U.S. Department of Education's Institute of Education Sciences (Glazerman et al., 2010). To evaluate the impact of a comprehensive induction program as compared to the traditional supports beginning teachers receive, researchers conducted an experimental study with 418 schools in 17 urban school districts, assigning schools by lottery to a treatment group or a control group (Glazerman et al., 2010). Of the 17 districts, 10 received one year of the treatment intervention, with the remaining seven districts participating in only their districts' traditionally offered induction program, if one existed. The treatment induction program, provided by two outside contractors, provided a treatment program that included

- carefully selected and trained full-time mentors;
- a curriculum of intensive and structured support for beginning teachers that included an orientation, professional development opportunities, and weekly meetings with mentors;

- opportunities for novice teachers to observe experienced teachers to focus on their instruction;
- formative assessment tools that permitted evaluation of practice on an ongoing basis and required observations and constructive feedback; and
- outreach to district and school-based administrators to educate them about program goals and to garner their systemic support for the program (Glazerman et al., 2010, p. xxvii).

Both providers, Educational Testing Services and the New Teacher Center, used a curriculum intended to promote effective teaching, with both programs including comparable activities to implement the curriculum of support. At a minimum, mentors were asked to meet weekly with teachers for approximately two hours, focusing on prescribed learning activities. Mentors also were able to select additional support activities, including observing or demonstrating lessons and reviewing lesson plans, materials, or student work. Beginning teachers were also provided monthly professional development sessions to complement work with mentors and observed veteran teachers once or twice during the year. Teachers in the Educational Testing Services districts also participated in mentor-facilitated peer support meetings to discuss their needs and practices (Glazerman et al., 2010).

The study attempted to determine the impact of comprehensive induction on both classroom outcomes, including student achievement and classroom practices, and workforce outcomes, which focused on teacher attitudes, teacher satisfaction, and teacher preparedness. For both one year and two year programs, researchers found no significant difference between the results of treatment versus control groups of teachers, with the exception of improved student achievement in the third year of students taught by teachers who had received two years of comprehensive induction support (Glazerman et al., 2010). Along with the experimental

analysis, researchers did a correlational analysis without regard to control or treatment group to determine the relationship between induction support and study outcomes. Induction intensity and the presence of an instructional focus had a positive relationship with teacher attitudes, with induction intensity also having a positive relationship with teachers' feelings of preparedness (Glazerman et al., 2010). The New Teacher Center responded to the research findings by noting the challenges of randomized controlled studies in complex environments such as educational sites and recommending the inclusion of qualitative measures to provide a more complete assessment of both implementation fidelity and results (Moir, et al., 2010).

As noted in Glazerman et al., (2010) despite an intensive focus on a curriculum of best practices in effective teaching, classroom practices were not significantly impacted by the intervention treatment. This finding suggests that alternative approaches from traditional workshops and mentoring as strategies to develop teacher proficiency should be explored. An understanding of the dynamic and complex nature of teaching coupled with the developmental nature of acquiring expertise provides an argument for induction support that is designed to support beginning teachers in learning cycles focusing on inquiry and reflection, in order to engage prior knowledge and provide practice in applying that knowledge to increase flexibility and fluidity in decision-making. Traditional induction programs often lack components that would naturally incorporate such learning models and tend to focus on procedural knowledge and orienting teachers to the profession, not the focused improvement of teaching practice.

Statement of the Problem and Program Objectives

Through the review and discussion of the developmental needs of beginning teachers, coupled with the development of models of intervention designed to address those needs better than traditional induction programs, I have provided a foundation for the importance of induction

based on successful support strategies that foster teacher development. My problem of practice focuses on addressing inadequate induction support of beginning teachers during the critical period of development. Through this literature review, I examined the stages of skills acquisition as applied to teaching practice and related those stages to the purposes of induction. The stages of skills acquisition provide support for the notion of induction as a bridge between the development of abstract content and pedagogical knowledge in pre-service teacher education programs and the application and integration of that knowledge in practice that occurs during the induction period as teachers work to develop teaching proficiency. Through induction support, beginning teachers can benefit from models of learning that support and accelerate growth by a constructivist model of learning to allow teachers to learn in and from practice.

In the following chapter, I will examine the induction program of the local district to better understand the needs of beginning teachers served by the program and how the current induction program is addressing those needs. A needs assessment, consisting of data collected from beginning teachers and supervising administrators, is used to determine the alignment between existing induction program services and the support needed by beginning teachers in developing teaching proficiency.

Chapter Three: Needs Assessment

As discussed in the previous chapter, the process of induction during the initial years of teaching helps build a foundation for an effective teaching career. Induction programs vary from district to district in terms of duration and focus. The purpose of this needs assessment was to determine the perceived professional learning needs of beginning teachers in one school district in order to plan an induction strategy to support the development of teaching proficiency. The needs assessment was guided by the following research questions (RQs):

RQ1: What do beginning teachers and their principals perceive as the professional learning needs of new teachers?

RQ2: What resources and supports do new teachers find most effective?

The specific intent of the assessment was to illuminate the areas of knowledge and skills in which beginning teachers may need additional support. Expected outcomes were focus areas for beginning teachers in their first year, including areas in which they could receive ongoing support over a longer induction period.

Description of the Setting

This study was conducted in a large, suburban public-school district in Virginia. The school district is comprised of 86 schools with a student enrollment of approximately 68,000. The district hires an average of 200 beginning teachers each year, with a total teaching force of approximately 5,000 teachers. The induction program is coordinated by a central professional development office.

Description of the Current Induction Program

The current teacher induction program has three components: a school-based mentoring program, district-wide orientation, and monthly workshops. The school-based mentoring follows

Virginia Department of Education guidelines and primarily serves to support teachers with logistical and procedural aspects of teaching (Division of Teacher Education and Licensure, 2000). The district-wide orientation provides an introduction to expectations for teaching and learning and is a multi-department collaborative effort. The primary goals of the district orientation are to introduce teachers to the mission and goals of the school district and to provide an overview of curriculum expectations and resources. The monthly pedagogical workshops are designed to provide focused ongoing instructional support and are differentiated by level (elementary, middle and high school). Examples of workshop topics include differentiation, classroom management, and formative assessment practices. The target audience for the induction program is beginning teachers in their first year of teaching.

Methodology

The focus of the needs assessment study is the learning needs of beginning teachers. The mixed methods research design for this assessment had two components: interviews and a survey. Original interviews were conducted with principals from each school level (elementary and secondary). These administrators, who currently have beginning teachers under their supervision, were selected to participate using stratified random sampling in order to ensure representation from all school levels. Through existing continuous improvement efforts by the office that coordinates induction support, secondary source data relevant to the research questions was available for this assessment. Teachers who are nearing the conclusion of their first year of teaching were invited to be voluntary, non-compensated participants in a survey. Through these processes, data was collected to inform an understanding of the support gaps during teachers' first year.

Variables

To determine areas of needs, the standards of The Virginia Department of Education Teacher Performance Standards and Evaluation Criteria (2011) were used to define the six variables that operationalize effective teaching. The six variables are professional knowledge, instructional planning, instructional delivery, assessment of and for student learning, learning environment, and professionalism. The seventh standard is an outcome measure that reflects student progress and was not included as a variable in this needs assessment. The variables are defined and then further illustrated by key elements that provide examples of the teacher behaviors that comprise each variable. The variables, definitions, and key elements are listed in Appendix A. The variable of effective professional learning strategies and support mechanisms for beginning teachers was also explored through open-ended questioning.

Data Collection Methods

The following section describes the data collection methodology for the administrator interviews and the secondary source data collection. Secondary source data from a survey instrument administered by the district professional development office was included in the analysis. A data collection matrix is included as Table 1 to show the alignment between the RQs, the data source, and the items of the interview and survey instruments.

Table 1

Needs Assessment Data Collection Matrix

Research Questions	Data Source	Items from Measures	Variables	Data Analysis
RQ1: What do beginning teachers and their principals perceive as the professional learning needs of new teachers?	Teacher Survey Principal Interview	Describe your professional learning needs as a 2nd year teacher. In thinking of the teacher evaluation standards and proficiencies, are there any areas that are consistent areas of weakness among the beginning teachers you supervise? If so, what are they? In thinking of the teacher evaluation standards and proficiencies, are there any areas that are consistent areas of strength among the beginning teachers you supervise? If so, what are they?	• Professional knowledge • Instructional planning • Instructional delivery • Assessment of and for student learning • Learning Environment • Professionalism (Virginia Department of Education, 2011)	Qualitative content analysis and coding according to variables
RQ2 What resources and supports do new teachers find most effective?	Teacher Survey Principal Interview	What support provided to you as a beginning teacher was most beneficial? Can you describe what support or resources are available to beginning or probationary teachers in your building? In your experience, what strategies have shown to be most effective in assisting beginning and probationary teachers in developing proficiency in teaching?	Effective support mechanisms and professional learning	Qualitative thematic coding

Principal interviews. A structured interview methodology was used to develop an understanding of the needs of beginning teachers as seen by the administrators who evaluate them. Four principals were selected using a stratified random sampling of those principals with two or more beginning teachers for the 2013-2014 school year. The sampling purposely included two elementary and two secondary principals randomly selected from the potential pool of 55 elementary administrators and 29 secondary administrators. Table 2 represents the demographics of the selected principals and includes the number of years of experience as a principal and the number of teachers they currently supervise who are in their first year of teaching as well as the total number classified as probationary in their first three years of teaching.

Table 2

Demographics of Principal Participants

Principal	**Years of Experience**	**N= Beginning/Probationary Teachers**
Elementary Principal 1 (EP1)	8	2/4
Elementary Principal 2 (EP2)	11	4/5
Middle School Principal (MP)	10	6/18
High School Principal (HP)	5	2/12

A structured interview protocol was used with each of the four selected administrators. The interview protocol is included as Appendix B. The interviews were audio-recorded for review and analysis. The interview questions focused on the consistent areas of weakness and strengths of beginning teachers under the supervision of the principals. Principals were further asked how they saw the needs of teachers evolving over the first few years of teaching. Finally,

principals were asked to comment on the support mechanisms that they utilized and felt were effective in helping beginning teachers develop teaching proficiency.

Secondary data source. In March 2014, the district's professional development office collected data from beginning teachers for the purpose of evaluating the existing induction program. Surveys were conducted voluntarily and anonymously. Participants were told that the data would be used to evaluate the induction program and inform future program decisions. Optional printed surveys were distributed and collected at the conclusion of the final induction workshop of the school year. Surveys were collected from 30 of 63 beginning elementary teachers and 49 out of 77 beginning secondary teachers. While the purpose of the data collection was to evaluate the services provided to beginning teachers, the responses to the open-ended items in the questionnaire were analyzed to inform the research questions of this needs assessment.

Data Analysis

Audio-recordings of the principal interviews were transcribed for analysis by the researcher. Because the focus of the analysis was to determine areas of strength and need within a pre-existing framework, the selected qualitative data analysis strategy used was content analysis, in which occurrence of particular concepts is assumed to indicate trends (O'Leary, 2014). Both the interview transcripts and the survey data were reviewed and coded according to the standards of The Virginia Department of Education Teacher Performance Standards and Evaluation Criteria (2011), which define the variables of the needs assessment. Using the key elements that articulate the teaching behaviors of the standard, statements were reviewed and categorized to align collected data to areas of strength or need of beginning teachers with the six defined domains of effective teaching.

A second qualitative data analysis was used to identify perceptions of effective support mechanisms. Both the text from interviews and surveys were reviewed to isolate comments regarding specific support practices. Those comments were then reviewed in an iterative process of identifying themes, which were then coded and categorized to generate findings, which are discussed in the next section.

Summary of Results

The purpose of the needs assessment was to determine areas of need in the development of teaching proficiency. This section lists key findings, followed by a discussion of implications for further consideration and study.

Key Findings

All four principals were consistent in identifying the standard of instructional planning as the greatest area of weakness for new teachers. Two principals even used identical verbiage to describe the conflict of new teachers possessing "a full bag of tricks" but lacking the experiences to know how and when to use all of the strategies learned from their pre-service education programs. An example provided was a beginning teacher understanding the relationship between formative assessment and intentional planning for instruction but being unable to effectively apply that understanding. Participants noted that a lack of experience and situational understanding hindered teachers' ability to successfully sequence instruction, especially when it came to dealing with struggling learners. In contrast, principals noted that beginning teachers consistently possessed a strong understanding of their content and discipline, an indicator of the standard of professional knowledge. This finding reinforces the belief that it is the previously noted lack of experience in instructional planning that hinders the application of content knowledge in terms of planning instruction.

Principals at all levels consistently observed that beginning teachers demonstrated both strengths and weaknesses in the competencies of the learning environment standard of the Teacher Evaluation Performance Standards. All principals noted that beginning teachers consistently demonstrated an understanding of the importance of relationships and a positive learning environment, and the high school principal and one of the elementary principals (EP1) noted that their beginning teachers served as role models in this aspect of teaching. Principals noted that their beginning teachers consistently worked to develop relationships with students but sometimes struggled with consistent implementation of routines and procedures. It was not that they didn't know strategies for establishing routines for classroom management; rather it was the consistent implementation that was the challenge.

When beginning teachers were asked about their learning needs for their second year, there was no consistent standard referenced in their open-ended responses. Table 3 provides a summation of the diversity of their responses according to level and standard. Responses within each standard represented a variety of subtopics within the standard. For example, in comments aligned to the standard of instructional planning, elementary teachers referenced planning for small group instruction, choosing appropriate resources, and differentiation, three very different subtopics with the standard. The lack of a consistent response was reinforced by principals' feedback that their beginning teachers have diverse needs and need administrator or coaching support and feedback in finding focus areas. The middle school principal noted that he and his new teachers choose one or two individual and specific areas in which to work so they can focus and build proficiency within a domain. He provides coaching support with conferencing and feedback but also used central support staff, specifically curriculum coordinators, to assist with this focused developmental approach. One of the elementary school principals (EP2) also

employed the same strategy of focusing beginning teachers on one or two specific areas in which to improve. She referenced observations, conferencing, and follow-up observations with feedback as tools she used to provide support to beginning teachers. There were no specific trends among responses that were not tied to a standard, with the exception of secondary teachers who expressed a need for support in time management.

Table 3

Teacher Survey Feedback - Professional Learning Needs as They Enter Second Year

Performance Standard	**Number of Comments by Elementary Teachers (n=30)**	**Number of Comments by Secondary Teachers (n=49)**
Professional Knowledge	1	0
Instructional Planning	5	8
Instructional Delivery	3	6
Assessment of and for Student Learning	3	2
Learning Environment	5	5
Professionalism	0	0
Student Academic Progress	0	0
Not Specific to a Standard	11	14
No Response	1	14

Responses from both administrators and beginning teachers were analyzed to determine concepts worthy of additional exploration for potential interventions. While the formal induction program includes orientation and ongoing workshops, no principal identified those as effective

strategies in supporting the development of beginning teachers. They instead spoke of school-based resources and job-embedded strategies, including resource specialists, collaborative planning, peer observations, and specific interventions by instructional coordinators. When teachers were asked whether the ongoing workshops supported their learning, many did affirm the beneficial nature of the workshops, but three themes also emerged for consideration:

1. The topics were not always seen as relevant.
2. The meetings were not always timely in terms of providing the topic when teachers perceived they needed it.
3. The sessions were not customized or differentiated to their individual needs.

Constraints and Implications

In considering the relevance of these findings for the problem of creating induction programs that meet teachers' developmental needs, several avenues emerged for further exploration. While this was not a program evaluation, the identified needs point to a potential misalignment between the needs of new teachers and the current program of induction. First, principals did not see the learning environment as a critical area of focus for new teachers. Because it was an area of focus for district level support through the monthly workshops, it is possible that principals did not see it as a need precisely because the formal induction program already supported beginning teachers in that area. In further consideration of the needs of new teachers, both teachers and principals indicated a diversity of needs but also stressed the benefit of customization to allow time for practice and improvement, which suggests the need for a strategy that does not provide additional workshops but instead provides support for an individualized approach.

Second, it is noteworthy that job-embedded strategies were identified as most effective because, other than mentoring, the strategies of the district's current formal induction program are not job-embedded, focusing instead on providing orientation and workshops. Finally, it was clear from principals and teachers that the second year is a continuation of growth from the first year and that teachers would benefit from continued nurturing and support.

The findings of this needs assessment reinforce Dreyfus & Dreyfus's (1980) five stage model of skills acquisition in which teachers enter the profession prepared by their pre-service education programs with foundational and abstract knowledge in content and pedagogy but lack the experience to successfully and consistently apply what they have learned. It was expected that the outcomes of this needs assessment would provide direction aligned to domains found in the evaluation standards in order to design an intervention to meet the specific learning needs of that teaching domain, but data from both administrators and beginning teachers did not support such a specific, defined direction for an intervention. While the findings pointed to an overall need to provide support for instructional planning, administrators and teachers emphasized that the needs of beginning teachers vary and are best addressed individually through focused job-embedded practice and supported reflection. In the next chapter, I will discuss a review of the literature to determine a professional learning strategy that focuses on job-embedded practice, utilizes reflection, and provides for individualization based on the needs of each unique beginning teacher.

Chapter Four: An Exploration of Interventions

Based on an evaluation of best practices in supporting the development of beginning teachers and further supported by a needs assessment in my district, I have identified a problem of induction that does not adequately support beginning teachers in developing teaching proficiency. While the domains of effective teaching provided a model and framework to consider the learning needs of beginning teachers, these learning needs could not be generalized to a specific domain. Because the needs assessment did not point to a specific area of skills deficit, it suggests a different approach will be necessary to support the development of teaching proficiency.

In this chapter, I will discuss the construct of personal teaching efficacy, a variable that has been shown to decline in the first year of teaching. This indicates that first year experiences have a negative impact on beginning teachers' feelings of success, which in turn impacts their learning and development. Next, I will discuss the literature on effective professional learning in order to provide a context for constructivist strategies that focus on supporting efficacy through reflective and analytical practice. These concepts will be utilized to develop a recommendation for an intervention strategy to support beginning teacher development that focuses on assisting beginning teachers to develop reflection and analysis skills in order to make effective use and application of pedagogical and content knowledge as measured by their sense of their personal teaching efficacy.

Review of the Literature

Personal Teaching Efficacy

Beginning teachers enter the profession with theoretical knowledge but lack the contextual experience to be able to consistently apply the theoretical knowledge they possess,

which can lead to lessened performance and a lower sense of teaching efficacy. As previously noted in chapter two, beginning teachers' feelings of success shape their sense of efficacy and are a strong predictor of whether they will stay in teaching (Birkeland & Johnson, 2002). In this section, I will discuss the definition of teaching efficacy, including how efficacy is developed, and the relationship of efficacy to the development of teaching proficiency.

Bandura (1977) outlined a theoretical framework that conceptualizes self-efficacy as a driver of behavior outcomes. This theory is based on the assumption that psychological processes strengthen or diminish self-efficacy expectations, which are differentiated from perceptions of general outcome expectations. Outcome expectations do not influence behavior if those expectations are in conflict with efficacy expectations (Bandura, 1977). For example, in the context of teaching, a teacher may believe that assertive discipline, a classroom management strategy, is effective but lack the personal belief that he or she could be successful with implementation. The stronger the perceived sense of self-efficacy, the more active and persistent the efforts to implement the behavior or actions, even in the face of challenges (Bandura, 1977). Notable for developing teaching proficiency, self-efficacy expectations influence both initiation and persistence of behavior. For beginning teachers who are learning to teach, a high sense of self-efficacy would suggest that they will persist even when they may struggle or not experience immediate success.

Definition of teaching efficacy. General teaching efficacy is defined as a teacher's belief in teaching as an influence on student learning (Ashton & Webb, 1986). In contrast, personal teaching efficacy is a type of self-efficacy in which teachers believe that they personally can control or influence student achievement or motivation (Tschannen-Moran, Hoy, A. W., & Hoy, W. K., 1998). Personal teaching efficacy is a measure of self-perception and not a direct

measurement of teaching effectiveness and is further described as "individuals' assessment of their own teaching competence" (Ashton & Webb, 1986, p. 4). Through a measure of personal teaching efficacy, beginning teachers will reveal their own perceptions of their ability to teach. Those perceptions have direct implications for their performance, as researchers have demonstrated a link between self-efficacy and student achievement (Tschannen-Moran et al.., 1998). Further, studies of teachers with high efficacy have shown that they exhibit behaviors that can be linked to positive student outcomes, such as small group instruction and persistence in assisting students to arrive at correct answers (Gibson & Dembo, 2004). Finally, as already suggested, higher self-efficacy contributes to teachers' persistence, giving them more time to become effective.

Sources of efficacy information. To understand how to support the development of personal teaching efficacy, it is necessary to consider how efficacy beliefs are formed. Bandura (1977) identified four sources of input that inform efficacy perception.

- Performance Accomplishments
- Vicarious Experience
- Verbal Persuasion
- Emotional Arousal

The category of performance accomplishments is highly influential because it is based on personal mastery experiences. Vicarious experience includes modeling of behavior, which can be influential when it is associated and defined by clear outcomes (Bandura, 1977). Verbal persuasion is a common tactic but is not as influential as authentic experiences, whether personal or observed (Bandura, 1977).

Emotional arousal, which may be commonly experienced as stress, informs personal competence. From a neuroscience perspective, Gorman (2014) described a reward system of the nervous system made up of a complex pathway between the ventral tegmental area of the brain stem, the nucleus accumbens, and the prefrontal lobe. Pleasure activates this pathway and thereby serves to reinforce behavior. Through functional magnetic resonance imaging and connectivity analysis, researchers have studied the regions of the prefrontal cortex to determine the integrative nature of motivation and cognitive control in decision-making (Cardinal, Parkinson, Hall, & Everitt, 2002). In considering teacher development, if teachers are supported in learning and implementing new skills and experience pleasure due to the positive feelings of success, then they are more likely to continue to seek out this type of experience. Likewise, if teachers struggle and are not supported in processing the experience and working towards successful practice of new skills, they are more likely to avoid repeated attempts.

Practices associated with support of or change in teachers' self-efficacy beliefs. While some researchers have noted that teachers' self-efficacy often declines during their first year (Chester & Beaudin, 1996; Clark, 2009), this decline is not universal and can be mediated by three school practices: (a) collaboration with professional staff members, (b) an administrator's attention to performance, or (c) access to instructional resources with support to filter and select resources (Chester & Beaudin, 1996).

Even without these factors, self-efficacy can be nurtured. In a study of second year teachers, researchers found that successful student teaching and preparation with a focus on reflective problem-solving contributed to those teachers' feelings of success and subsequent high self-efficacy, even in situations where expected positive school factors were not in place (Yost, 2006). However, high efficacy teachers in schools with poor climate and non-supportive factors

are more likely to transfer and move to a school more aligned with their beliefs. The researcher noted that despite evident school support factors, including support from colleagues and administrators, one teacher was not effective or successful because the teacher had difficulty coping and responding to challenges because of a "non-reflective teaching orientation" (Yost, 2006, p. 73). The need for positive and collegial opportunities for beginning teachers within the school or at the district level, as well as for a focus on reflective practices, should inform the development of a district induction program.

In a study of the effects of professional development on standards-based mathematics instruction, Ross and Bruce (2007) intentionally designed a professional development intervention based on the four sources of information suggested by Bandura (1977). Multiple strategies were employed to increase competence and create mastery experience, including a workshop focused on content incorporating elements of effective mathematics instruction (Ross & Bruce, 2007). Second, the definition of success was shaped to focus on deeper analysis of student understanding, which allowed teachers to judge student performance, and thus their own performance, in a new way. Teachers were provided an opportunity for vicarious experiences through observation and debriefing sessions. Finally, through social persuasion, presenters provided direction and encouragement to increase confidence and assuage stress. The results of the study showed the professional development intervention had a significant effect on classroom management (Ross & Bruce, 2007). Other studies support the use of strategies that allow teachers to practice and apply learning with follow-up assistance in developing mastery after formal professional development workshops (JohnBull, Hardiman, & Rinne, 2013).

In summary, support of teaching efficacy should be aligned with the four sources of information for efficacy development, which are performance accomplishments, vicarious

experience, verbal persuasion, and emotional arousal (Bandura, 1977). Key characteristics for inclusion in the proposed intervention are focused analysis aligned with the expectations of the teacher evaluation system (Chester & Beaudin, 1996), and guidance and support to self-reflect in order to build on strengths and identify areas of focus for improvement (Chester & Beaudin, 1996; Ross & Bruce, 2007). These key characteristics allow for scaffolding and support to achieve mastery performance, provide an opportunity for vicarious experiences, and allow a relationship to be built for meaningful verbal persuasion and emotional support. In the next section, an overview of professional development models will be provided to inform a context for an efficacy support strategy that will impact the professional practice of beginning teachers.

Professional Development

Guskey (2002) noted that teacher professional development is at the core of every modern educational reform initiative. According to Guskey (2002), the purpose of professional or staff development for teachers is the improvement of student learning through a systematic attempt to change instructional practices, beliefs, and attitudes of teachers. Learning Forward (2011), formerly the National Staff Development Council, contends that the purpose of professional learning is to "develop the knowledge, skills, practices, and dispositions they need to help students perform at higher levels" (Overview, para. 1). In their release of revised standards, Learning Forward (2011) deliberately chose to rename and rebrand their standards as Standards for Professional Learning rather than Standards for Professional Development. This was done to signify shifts in thinking about best practices to the current belief in the "importance of educators taking an active role in their continuous development" with an emphasis on learning (Overview, para. 2). Through the standards, Learning Forward (2011) also stresses that optimal

teacher learning occurs when educators are empowered to determine "the content of their learning, how their learning occurs, and how they evaluate its effectiveness" (Overview, para. 2).

In a study explicitly comparing the effects of different characteristics of professional development, Garet, Porter, Desimone, Birman, and Yoon (2001) identified core and structural features of professional development activities to determine the effect on self-reported teacher behavior and outcomes. The core features (content focus, active learning, and degree of coherence) define the characteristics of the professional learning activity, while the structural features (form, duration, and degree of collective participation) established the context of the activity. The theoretical relationship posited in the study was that structure supports core features, which then contribute to teacher learning outcomes. For example, activities conducted over a longer duration tended to allow for more active learning, which yielded more positive learning outcomes for teachers. Researchers found empirical evidence that teacher learning was greater when professional development was sustained and intensive, focused on academic subject matter, allowed an opportunity for active or hands-on learning, and had a high degree of coherence. Coherent professional development was defined as activities that were connected and aligned to other professional development experiences and standards, and that fostered professional communication. The results of the study provided confirmation of what are commonly assumed to be best practices in professional learning, and yet the teacher respondents indicated that many of their experiences were not representative of these high impact activities, which the researchers speculated was due to the cost and time it takes to plan (Garet et al., 2001).

Desimone (2009) elaborated further on those findings to create a model of professional development that begins with the incorporation of core features, which contribute to increased teacher knowledge and skill and/or a change in attitudes or beliefs. The core features

recommended for inclusion are content focus, active learning, coherence, duration, and collective participation (Desimone, 2009). In contrast, Guskey (2002) proposed a model that suggests that changes in teachers' attitudes and beliefs do not occur until after positive student learning outcomes are experienced. This distinction is important to consider with beginning teachers because in the process of implementing strategies for the first time, a beginning teacher might not experience successful outcomes consistently, which in turn could have a negative outcome on attitudes and beliefs. This supports the need for guidance and feedback in the implementation of new strategies, with assistance in reflecting on both successes and challenges, which also provide support for performance mastery and development of teaching efficacy.

There is a demonstrated need in the targeted school division for attention to the support of beginning teachers due to the current state of inadequate support for the development of teaching proficiency. Both principals and teachers reported a disconnect between the current program of induction support and the needs of beginning teachers. Using the core features of professional development suggested by Desimone (2009) as a frame for a teacher induction strategy, planning for a new intervention strategy will include attention to content focus, active learning, coherence, duration, and collective participation.

This framework aligns with findings from induction research, specifically those of mentoring programs. The focus on context, along with development of a shared understanding of the elements of effective teaching, need to drive both the training for mentors and the interactions between mentors and beginning teachers (Everston & Smithey, 2000; Stanulis & Floden, 2009). Support for active learning occurs in many mentoring models through job-embedded strategies of observation and protocols for collaboratively examining instructional practices, materials, and student data and work (Stanulis & Floden, 2009). Focusing on content

and instruction supports coherence, with that focus reinforced and supported by each element in the induction program, thus providing a framework for teachers to make meaning of expectations (Glazerman et al., 2010, Everston & Smithey, 2000). Collective participation, including opportunities for collaboration, is seen as a critical element in effective induction programs (Smith & Ingersoll, 2004).

In considering key elements of induction and professional development strategies and the need of beginning teachers to learn to apply theoretical knowledge and develop expertise, the strategy of reflection allows for active learning and focus. In the next section, reflective practices will be explored as a learning strategy for beginning teachers.

Reflection

Reflective practices through processes of critical inquiry, analysis, and self-directed evaluation are strategies for professional learning that have been associated with growth (Calderhead, 1989). While there are numerous definitions of reflection, considering reflective practices in terms of their purpose is useful when considering reflection as a learning tool for beginning teachers. The three purposes or dimensions of reflection are descriptive, comparative, and critical (Jay & Johnson, 2002). Descriptive reflection includes observations of the event or situation, while comparative reflection involves reframing for alternative perspectives. Critical reflection involves interpretation through consideration of multiple perspectives (Jay & Johnson, 2002). Similarly, Etscheidt, Curran, and Sawyer (2011) suggest a purpose-driven framework that is not hierarchical in terms of complexity but categorized by the type of activity at each level of reflection. The three levels of their multilevel model are (a) technical, characterized by criticism of lesson development and delivery; (b) deliberative, driven by interactive journal writing and video-based lesson analysis; and (c) critical, centered on topical seminar discussions. While

typologies and models with articulated dimensions might suggest a possible framework for teaching reflective practices, Jay and Johnson (2002) caution that reflection cannot be reduced to a series of prescribed steps and suggest that any framework is merely a way to categorize complex processes.

The numerous conceptions and frameworks for teacher reflection indicate the complexity and multidimensionality of reflection as a process. Reflection is a popular strategy for consideration for beginning teachers because it requires a focus area and an opportunity to connect knowledge to practice (Etscheidt, Curran, & Sawyer, 2011). Some theorists consider deliberate reflection as essential to the cultivation of the decision-making and problem-solving dispositions characteristic of expert teachers (Etscheidt et al., 2011). One key component of reflection is noticing, and the next section discusses the challenges associated with noticing among beginning teachers.

Noticing. As part of the decision-making process that occurs in classroom instruction, teachers must be able to identify patterns, a skill that distinguishes expert from novice practitioners. Van Es and Sherin (2008) term this skill as noticing and suggest that teachers need practice and guidance in "learning to notice" (p. 245). Through structured reflection, teachers can increase their skills in noticing and thus improve their decision-making skills. The researchers characterized noticing as having three aspects (Van Es & Sherin, 2008). The first aspect of noticing is identifying what is important, which influences what is attended to as instruction is implemented. Second, noticing includes the application of contextual knowledge, which includes knowledge of content, students, and the local setting, for analysis. For novice teachers, the application of knowledge in the moment as events occur is a developmental process. The third aspect of noticing is categorizing from the specific occurrences to broader general principles,

which is an interpretive skill. This categorizing and higher-level application allows teachers to recognize events as more than isolated occurrences but as related to abstract principles. Practicing this skill increases flexibility and the ability to respond appropriately in the moment, an expert characteristic, ultimately assisting teachers in becoming more effective practitioners.

Video-based reflection and analysis. The use of video of instructional and classroom practices can be used to prompt reflective processes and support the development of analytical skills (Friel & Carboni, 2000; Van Es & Shearin, 2008). Research suggests that reviewing video of one's teaching not only elicits more specific comments in reflective writing but also shifts the content of the reflections to more student-centered and instructionally-focused content than when teachers reflect based on their memory alone (Rosaen, Lundeberg, Cooper, Fritzen, & Terpstra, 2008). This practice of reflecting on video can also support teacher development and change in instructional behavior. Tripp and Rich (2012) identified a change process that occurs with reflection on videotaped instruction. Teachers identified video as beneficial at each of the four identified steps, which were (a) recognizing the need to change, (b) identifying ideas for change, (c) acting on those ideas, and (d) evaluating the changes made (Tripp & Rich, 2012, p. 732). The reflective process of reviewing video was an active process, characterized by focused analysis, a cycle that encouraged accountability, and a method of documenting progress (Tripp & Rich, 2012).

One specific strategy designed to increase teachers' skills in noticing, with a specific focus on the development of mathematical understanding, involves the use of peers for both discussion and as a source of videotaped instruction (Van Es & Shearin, 2008). This strategy involves a facilitator guiding the discussion, using general questions to elicit observations and more specific questions to prompt interpretations. Analysis of transcripts from the meetings and

individual interviews showed a significant difference in teachers' reflections and analysis as compared to teachers in a control group who did not participate in the intervention. Specifically, teachers participating in the video club attended more to student actions and evidence of mathematical thinking, and they provided more interpretative comments. A notable consideration when selecting a strategy to promote development with beginning teachers is the concept of transfer, the use of a skill in new contexts and situations, and all six participating teachers demonstrated transfer of noticing and analytical skills to their own classrooms, demonstrating changes in their instructional practices in terms of student interaction and sharing of ideas, pacing, and questioning skills (Van Es & Shearin, 2008).

The use of video as a strategy for professional learning requires consideration of the selection of the source of the video. In a study focused on determining the impact of video content selection on the development of teachers' noticing and knowledge-based reasoning skills, researchers used an experimental approach and analyzed the differences between using teachers' own recordings of teaching and the recordings of other teachers (Seidel, Stürmer, Blomberg, Kobarg, & Schwindt, 2011). Findings support the conclusion that teachers who analyzed their own teaching experienced higher activation, indicated by higher immersion, resonance, and motivation. However, the teachers were not as critical of their own teaching, but the higher activation did lead to more detailed observation of their own teaching with greater consistency than when viewing the teaching of others. This finding suggests the benefits of using videos of one's own teaching for reflection to engage and prompt higher level analysis.

Role of the Facilitator/Mentor

A key factor in the reflective process is the role of the facilitator or mentor. While mentoring programs vary, Richter et al. (2013) suggest that there are three separate areas of support provided by mentoring:

1. Instructional support is mentoring focused on the skills and knowledge to succeed in the classroom.
2. Psychological support is focused on the beginning teacher's individual well-being.
3. Role modeling is focused on providing external perspectives and socialization into the teaching profession. (p. 167)

In terms of instructional mentoring, Richter et al. (2013) suggest two approaches to mentoring beginning teachers. A constructivist-oriented approach is characterized by reflection, risk-taking, and autonomous decision-making in which the beginning teacher generates and develops his or her own understandings. In contrast, transmission-oriented mentoring is characterized by the transmission of knowledge conveyed by expert teachers to beginning teachers. Feiman-Nemser (2001) proposes a model of mentoring called educative mentoring, which is similar to constructivist-oriented mentoring in that educative mentoring is characterized by fostering inquiry and supporting the development of skills that enable beginning teachers to learn in and from their practice.

In evaluating the effectiveness of constructivist-oriented mentoring, Richter et al. (2013) concluded that beginning teachers who experienced one year of constructivist mentoring show higher levels of efficacy, teaching enthusiasm, and job satisfaction, and lower levels of emotional exhaustion, as compared to teachers without constructivist mentoring. In contrast, transmission-

oriented mentoring did not significantly affect those outcomes, which suggests that inquiry and critical reflection are beneficial to beginning teachers' development, while a more hierarchical supervisory approach does not contribute to beginning teachers' sense of competence (Richter et al., 2013). From a developmental perspective of the needs of beginning teachers, a constructivist or educative mentoring approach assumes the presence of prior knowledge and provides opportunity through inquiry and reflection to learn from practice, cultivating the skills of proficient and expert teachers.

Implications

Personal teaching efficacy is a construct that impacts teaching performance and development. Beginning teachers are likely to develop poor personal efficacy beliefs if in the process of learning to teach, they struggle and do not have the support or confidence in their own competence to persist. Thus, supporting a positive sense of personal teaching efficacy is important not only for teaching performance but teacher development.

Best practices in professional development models align with the four sources of information for efficacy development (Bandura, 1977), suggesting an approach that utilizes collaboration and guidance to support mastery performance through vicarious experience and emotional support. Using an understanding of effective teaching provided by the Virginia Department of Education Teacher Performance Standards and Evaluation Criteria (2011) to provide coherence and content focus, beginning teachers will be supported in active learning through reflection to better understand facets of their teaching performance and positively impact their personal teaching efficacy.

Proposed Intervention

Based on the hypothesis that it will positively affect beginning teachers' development as shown through their perceived teaching self-efficacy, the proposed intervention is an induction strategy incorporating guided reflection and observation of one's own practice using videotaped segments of beginning teachers' instruction.

Videotaped Instruction

Participating teachers will be expected to videotape their instruction twice a month. Equipment, provided to each teacher, contains a full recording solution with an iPod Touch, a Swivl C-Series robot, and a receiver, worn by the teacher, which allows the iPod Touch to swivel and record his or her movements. The Swivl will allow for independent videotaping, which gives the teacher the opportunity to select the lesson or activity without needing to schedule a videographer. In a sense, the Swivl serves as an automated videographer responding to the movement of the teacher. Removing the need for a videographer lessens the potential anxiety that teachers might feel being videotaped (Griswold, 2005) and puts the control of when to record and what recording to select for review in the hands of the beginning teacher. For the purpose of the subsequent components, the videotaped instruction should include a full sequence of instruction with teacher and student interaction and clear audio. The technology selected was intentionally chosen to minimize the need for technical skills of editing and downloading, which can impact the quality of reflection and subsequent activity (Maclean & White, 2007).

Independent Review of the Videotaped Instruction

Participating teachers will independently watch each recorded instructional lesson and take notes of their observations in a provided journal. The note-taking is an open-ended opportunity for teachers to record observations on the lesson. Noticing, a critical step of the

decision-making process, is one of the factors that distinguishes a novice from an experienced teacher (Van Es & Sherin, 2008). To encourage practice with this skill, teachers will be instructed to watch the recorded lesson twice.

Facilitated Reflection and Analysis

Using the Teacher Self-Evaluation Tool (Virginia Department of Education, 2011), the participating teacher and facilitator will engage in a reflective discussion and analysis of each recorded lesson. The teacher can reference the recorded video and his or her notes to provide evidence or examples aligned with the standards and proficiencies of the Virginia Department of Education. The role of the facilitator will be to prompt reflection beyond a technical observation level to an interpretative and problem-solving level, through questioning that requires the teacher to state noticed examples of practice or implementation and then interpret outcomes. This strategy aligns with the constructivist-oriented mentoring approach that allows the teacher to identify and generate solutions to problems (Richter et al., 2013). Practicing this skill of noticing and categorizing events should increase flexibility and the ability to respond appropriately in the moment, an expert characteristic (Dreyfus & Dreyfus, 1980; Van Es & Sherin, 2008).

Conclusion

My problem of practice focuses on addressing the needs of beginning teachers during the critical development period of induction with the specific aim of accelerating development of teaching proficiency. Both the needs assessment and the literature on the developmental process of learning to apply and integrate knowledge into practice suggest that induction should not focus on specific domains of teaching but rather support beginning teachers in reflecting on practice in order to strengthen decision-making and their sense of their own competence or efficacy. Through an intervention including video reflection and analysis, beginning teachers can

strengthen their awareness and understanding of the complexity of classroom dynamics and refine their instructional practice. With guidance from a facilitator, beginning teachers will learn the processes of reflective practice through a structured framework that provides a basis for the development of teachers' skills of observation, interpretation, and action. It is expected that this strategy will sustain and develop beginning teachers' personal teaching efficacy by providing both mastery and vicarious experiences through observation and verbal persuasion with the focus on the domains of effective teaching and support of the facilitator.

Chapter Five: Intervention Procedure and Treatment Evaluation Plan

As discussed in previous chapters, beginning teachers often lack the contextual experience to be able to consistently apply the theoretical knowledge they possess. This lack of contextual experience leads to inconsistent teaching performance and a lower sense of personal teaching efficacy. Teachers with low personal teaching efficacy are less likely to persist when there are challenges, and they experience greater dissatisfaction with teaching, each of which hinders learning and development. This chapter describes the intervention procedure and provides details of the evaluation methodology for both the process and outcome evaluations. The study's expected outcome was heightened teaching efficacy because of greater contextual understanding developed through reflection and analysis of their own practice. Through a mixed methods approach, quantitative data was used to test the prediction that the intervention treatment would have a positive impact on personal teaching efficacy with qualitative data to explore the implementation and impact of the intervention treatment.

Method

Sample and Participant Selection

The original design of the study used a randomized experimental design with a minimum of 20 beginning teachers as participants in the study. Participation was voluntary and restricted to full-time beginning teachers defined as those with zero years of prior experience. Voluntary participation ensured that the intervention and control group would have similar predispositions towards the project (Rossi, Lipsey, & Freeman, 2004). In addition, because teaching experience is a variable that may mediate personal teaching efficacy (Hoy & Spero, 2005), the study was restricted to beginning teachers to create a homogenous sample with respect to the variable of teaching experience.

In September of 2016, 143 of the 577 teachers hired for the 2016-2017 school year met the criteria of being full-time and a beginning teacher with no experience. The targeted teachers received a printed invitation through inter-office mail, followed by an initial emailed invitation and a follow-up email to non-responders during the month of September and October. As teachers were continuously hired throughout the school year, additional invitations were sent in November, bringing the total number of beginning teachers invited to participate in the study to 160.

Participation in the research study was one of many professional development options available to beginning teachers in a flexible, personalized professional learning program. Professional learning is a contractual requirement in the district, and this offering is one of many available. Participants were told that participation in this study was voluntary, and there would be no repercussions for electing not to participate. The researcher manages the district's professional learning program and coordinates professional learning options and does not directly or indirectly supervise teachers or provide evaluative information to supervisors. To minimize the risk and perception of coercion, recruitment did not involve face-to-face meetings or direct involvement by supervisors.

Although 11 teachers initially volunteered to participate, only nine of them ultimately agreed to participate in the study. Using a method of restricted random assignment to force equal sample sizes (Shadish, Cook, & Campbell, 2002), half of the participants were to be randomly assigned to receive the intervention of video-based reflection during the first semester, with the remaining 10 teachers serving as a control group during the same treatment period. The lower than intended level of volunteer participation resulted in the decision to eliminate the use of a control group in order to maximize the number in the treatment group. Other changes to the

study design will be discussed later in the chapter. Of the nine who began the study, six teachers fully completed all components of the study, and three teachers did not fully complete all components of the study.

Demographics of participants. All teachers in the study self-reported as beginning teachers, and their employment status as full-time teachers with zero years of teaching experience was verified through the district's Department of Human Resources. Table 4 provides demographic information regarding the participants and their teaching assignments. The beginning teachers in the study had teaching assignments from grade 4 through 8. Seven of the nine teachers were hired and began the school year in August. Two teachers, E1 and M2, were hired and began teaching after school had started. The nine teachers taught at five different schools. M1 and M4 teach at the same school. M2, M5, M6, and M7 all teach at the same school.

Table 4

Demographics of Participants

Study Participants	Gender	Teaching Assignment	School Assignment	Hire Date
E1	Female	Fourth Grade, All Subjects	School 1	10/19/2016
M1	Male	Seventh Grade, Social Studies	School 2	8/26/2016
M2	Female	Sixth Grade, English	School 3	9/15/2016
M3	Male	Eighth Grade, English	School 4	8/26/2016
M4	Female	Sixth Grade, English and Social Studies	School 2	8/26/2016
M5	Female	Seventh Grade, English	School 4	8/26/2016
M6	Female	Sixth and Seventh Grade, Special Education	School 4	8/26/2016
M7	Female	Seventh Grade, English	School 4	8/26/2016
M8	Female	Eighth Grade, English	School 5	8/26/2016

Induction support provided to participants. For ethical reasons, district supports provided to all beginning teachers were not withheld and were available to teachers who participated in the treatment. As part of the district's induction program, all participants were assigned a school-based mentor who was a trained, experienced teacher in their building, and each participant reported meeting at least weekly with their mentor. All participants also participated in a weeklong orientation, with the exception of E1 and M2, who were hired after the beginning of the school year. Only one participant, M7, attended any of the optional professional development sessions offered quarterly for beginning teachers, and that teacher only attended one. One participant, M8, attended monthly sessions offered at her school for beginning teachers. All participants attended the professional learning sessions required of all teachers at

each school, but none attended any division-provided sessions open to all teachers throughout the school year or any other external professional learning activities, with the exception of M1 who attended a multiday Advancement via Individual Determination (AVID) workshop. In summary, in addition to participating in the treatment, participating teachers also had the opportunity to attend orientation and other professional learning activities throughout the year and were supported by mentors.

Procedure

The treatment consisted of sequential components of videotaping, review, and reflection, which were repeated twice monthly for the duration of the three-month study. The following section provides an overview of each component of the intervention methodology.

Video-Recorded Instruction

Participating teachers were expected to video-record their instruction on a flexible schedule six times using equipment provided to each teacher. Equipment provided included an iPod Touch, a Swivl C-Series robot, and a tripod. Teachers met individually with the researcher for training on the equipment, which consisted of learning how each piece of equipment connected and practicing recording and uploading videos. The teacher created an accounts on the Swivl web-based platform, which provided private storage and on-demand access to recordings. At this meeting, the researcher also reviewed the informed consent form and the teacher's responsibilities. The informed consent form can be found in Appendix C. For the purpose of review and reflection, teachers were directed to record a full sequence of instruction.

Independent Review of the Video-Recorded Instruction

Participating teachers were expected to independently watch each recorded instructional lesson twice and make observation notes in a journal. Participants were not provided specific

directions for how to write the notes but at the initial training meeting were instructed to record what they observed.

Facilitated Reflection and Analysis

After watching the recorded lesson, the teacher contacted the researcher to schedule a meeting. At the meeting, the teacher engaged in a semi-structured reflective dialogue with the researcher about his or her observations of the lesson. The role of the researcher was to facilitate reflection through questioning that required the teacher to discuss examples of practice aligned to the standards of The Virginia Department of Education Teacher Performance Standards and Evaluation Criteria (2011) and then interpret outcomes of his or her actions. The researcher would start the dialogue by asking about the focus of the lesson, a description of the sequence of instruction, and then what was observed. Based on the verbalized observations of the participant, the researcher selected appropriate questions from the Virginia Standards for the Professional Practice of Teachers: Supplemental Document A - Inquiry Format, found in Appendix C (Virginia Department of Education, 2011). These questions were designed as a tool to "foster reflection and insight through questions that encourage teachers to examine key aspects of teaching within each standard" (Virginia Department of Education, 2011, p 2). In this protocol, the questions were used as probes to prompt further reflection and analysis of the participant's observations. Teachers were further asked if watching the video or discussing their observations prompted them to consider changes to their teaching and if so, what changes were they making.

Intervention Treatment Evaluation

The evaluation included a process component as well as an outcome evaluation to address the following three research questions:

RQ1: To what extent were each of the program components implemented as planned?

RQ2: What impact does video-based reflection have on the teaching efficacy of beginning teachers?

RQ3: What are the participants' perceptions of the impact of the intervention treatment?

The following section provides an overview of the data collection and analysis methodology for the process evaluation, focusing on RQ1, and the outcome evaluation, focusing on RQ2 and RQ3.

Process Evaluation

Process evaluation may complement an impact evaluation by determining the integrity of the delivery of the treatment, which is especially important with the implementation of a new program (Rossi et al., 2004). For this study, a critical process evaluation question focused on measuring the adherence to the planned components of the treatment through RQ1: to what extent were each of the program components implemented as planned?

Fidelity of implementation. The process evaluation measured the fidelity of implementation, which is the degree to which the treatment was implemented as planned and as specified by adherence, dosage, quality, participant engagement, and differentiation (Dusenbury, Brannigan, Falco, & Hansen, 2003). The conceptualization of fidelity for the study focused on adherence to the components of the treatment, as outlined in the previous section, and includes the specified dosage in terms of frequency of implementation of the various components. While there were changes to the planned study with the elimination of a control group, those changes were established prior to the beginning of implementation and did not impact the actual plan for the implementation of the treatment. As such, the fidelity of implementation evaluation continued to be consistent with the initial plan.

All of the components of the treatment, including the facilitated reflection and analysis, were reliant on the participants for implementation, as they were predicated on the completion of the other two components. Because of the reliance on participants, dosage, including the frequency and duration, was a critical aspect of fidelity to consider and document (Dusenbury et al., 2003). Each of the components was to be completed twice a month, for three months, resulting in six complete cycles of recording, reviewing, and reflecting and analyzing.

Indicators of fidelity of implementation. The major constructs of the treatment were the activities or components, and each component was sequential and predicated on completion of the previous component. Because of the importance of the activities in relation to the theory of change, the focus of the process evaluation is on adherence and frequency, and the indicators were developed to measure those aspects of fidelity. The fidelity indicators for this study are provided in Table 5. The researcher was responsible for verification of each fidelity indicator.

Table 5

Process Evaluation Data Collection Matrix

Fidelity Indicator	Data Source(s)	Data Collection Tool	Frequency
Adherence to Program Component: Videotaped Instruction	Participant self-report	Interview	Six times verified during the facilitated sessions
Adherence to Program Component: Review of Videotaped Instruction	Participant participation	Journal	Six times verified during the facilitated sessions and at the conclusion of the treatment
Adherence to Program Component: Facilitated Reflection and Analysis	Participant Participation	Audio recording	Six times verified during the facilitated sessions
Frequency	Facilitated meetings	Schedule/ checklist	Six times verified during the facilitated sessions

Adherence to program component: videotaped instruction. The first component of the treatment was the actual video-recording of instruction. The specifications for this component were that the recording include a full sequence of instruction. Using the Swivl application on the iPod touch, recordings were automatically uploaded to each teacher's private, password-protected online repository, and then removed from the iPod. High fidelity of implementation

would be indicated by compliance with the requirements of a recording of the full sequence of instruction that showed the introduction and conclusion of a lesson.

Adherence to program component: review of video-recording of instruction. The second component of the treatment was the independent review of recorded instruction. Teachers were directed to watch their recorded lesson at least twice and use a journal to record their observations. During the facilitated meeting, teachers were asked to self-report the number of times that they watched the video and then were prompted to use their notes during the meeting, which allowed the researcher to observe compliance with that expectation for this component. The facilitated meeting again served as a formative opportunity to assess the teachers' ability to effectively use the technology and equipment to complete the task and their engagement with the independent task itself. High fidelity of implementation was defined by a self-reported number of at least two viewings of the video-recorded lesson and the use of the journal for notes. It was expected that as teachers practiced reflection and analysis during each facilitated session, the note-taking process would demonstrate changes during the course of the study, but the notes were not evaluated for content, quantity, or quality.

Adherence to program component: facilitated reflection and analysis. The third component of the treatment was the facilitated discussion incorporating reflection and analysis. This discussion was framed by and aligned with the self-reflection tool provided by the Virginia Department of Education (2011). The discussion was audio-recorded and transcribed to monitor the adherence to protocol followed by the researcher and to analyze the teachers' comments to inform the outcome evaluation. High fidelity of implementation would be indicated by the completion of the required facilitated discussions with adherence to the protocol with reflective

questioning and no coaching or feedback provided by the researcher during the facilitation of the discussion.

Frequency. Each of the program components should have been completed twice monthly for a total of six cycles. The researcher kept a schedule and checklist in order to send periodic reminders to participating teachers. During the facilitated sessions, completion of each component was reviewed and verified. High fidelity of implementation was six completions of each component. Progress monitoring of this aspect of fidelity provided formative data on participant engagement and the need for differentiation in terms of the pace of expected completion of each component. While the schedule was determined by the teacher's selection of the time to videotape, the beginning teacher's ability to manage responsibilities necessitated some support in the form of more frequent reminders. It was expected that a low indication of fidelity in terms of frequency of participation in the components might adversely impact the program outcomes, so completion of the flexible but required schedule was emphasized with participating teachers.

Summary of the process evaluation. In summary, the process evaluation plan was guided by the conceptualization of the fidelity of implementation, as defined by the adherence to program components, implemented at the prescribed dosage. Because two of the components are completed independently by participating teachers, focusing on adherence to the planned treatment plan was critical as a means to determine fidelity. The indicators of fidelity served as formative and summative measures, allowing for the potential to identify problems or needs and then differentiate support for teachers to assist them in completing the planned implementation components during the course of the study.

Outcome Evaluation

In this section, the data collection and analysis plan for the two RQs of the outcome evaluation are outlined.

RQ2 data collection. To measure the intervention treatment's impact on the teachers' personal sense of efficacy, a pre and post survey was administered to all participants. A data collection table (Table 6) outlines the variables measured for RQ2.

Table 6

RQ2 Evaluation Data Collection Matrix

Indicator	Role of Indicator	Data Source(s)	Frequency
Personal teaching efficacy	Outcome	Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001)	Pre and post
Teacher experience	Control variable	Human Resources Department Data	Initial Selection

For the study, one outcome measure was evaluated to answer the RQ2: what impact does video-based reflection have on the teaching efficacy of beginning teachers? The hypothesis tested was that if beginning teachers participated in an intervention of video-based reflection, they would be likely to sustain or increase personal teaching efficacy, as measured by the Teachers' Sense of Efficacy Scale (see Appendix E). The study examined the dependent variable of personal teaching efficacy, a type of self-efficacy in which teachers believe that they can

control or influence student achievement or motivation (Tschannen-Moran, Hoy, A. W., & Hoy, W. K., 1998).

The Teachers' Sense of Efficacy Scale, a 24-item instrument with a 9-point Likert scale, has three teacher efficacy subscales with the overall score a measurement of the underlying construct of teacher efficacy. The three dimensions of efficacy represented by the subscales of instructional strategies, student engagement, and classroom management are not specific to teaching assignment by level or subject area and are therefore applicable to teachers of different levels or disciplines (Tschannen-Moran & Woolfolk Hoy, 2001). The instrument was administered at the beginning and conclusion of the intervention.

RQ2 data analysis. Participants completed the Teachers' Sense of Efficacy Scale twice, once prior to the beginning of treatment in December 2016 and again at the conclusion in March 2017. The unweighted means of the items aligned to each factor, Efficacy in Student Engagement, Efficacy in Instructional Practices, and Efficacy in Classroom Management, were calculated to determine an initial efficacy score for each subscale. The unweighted mean of all items was calculated to determine the overall Teachers' Sense of Efficacy score, with nine being the highest possible score. The post treatment efficacy values were calculated from March responses. The change in self-efficacy were calculated by taking the difference between the initial and post-treatment efficacy values for each subscale and the overall score. To test the research hypothesis that the posttest scores of the treatment group would be higher than the initial scores with the treatment group, the Wilcoxon signed-rank statistical test was used. This non-parametric statistical test compares dependent samples using the ranks of the differences of the paired scores and was selected because of the small sample size and because a normal distribution could not be assumed or assessed (Pagano, 1998). The test statistic is obtained by

ranking the absolute value of the differences in pre and post treatment scores and then adding the positive signed rank scores and the negative signed rank scores. The smaller of the two sums is the test statistic (T_{obt}), which is then compared to the critical value at the .05 level of significance to determine the probability of variability due to chance or due to the treatment (Argyrous, 2011).

RQ3 data collection. To compensate for the small sample size, as well as the loss of the control group, a qualitative component was added to the study to address RQ3: What are the participants' perceptions of the impact of the intervention treatment? Following the completion of the intervention study, the researcher interviewed each participant, focusing on his or her perceptions of the impact of the treatment, as well as feedback on the process followed in the intervention treatment. The interview protocol can be found in Appendix F.

RQ3 data analysis. Interviews were transcribed and analyzed with NVivo Pro version 11, a qualitative data analysis software package. The analysis consisted of multiple coding cycles using First Cycle and Second Cycle coding methods (Saldana, 2013). The initial coding method selected was in vivo coding as a method to attune the researcher to language and perspectives (Saldana, 2013). This method was followed by descriptive coding to determine topics for second cycle analysis with focused coding to allow for the discovery of outcomes beyond the categories of the Teachers' Sense of Efficacy subscales.

Evaluation Design

Strengths and Limitations of Design

The study design had both strengths and limitations. One strength of the study was the reduction of selection bias through the use of restrictions that ensured that the composition of the treatment group was identical as possible in terms of predisposition. Another strength is the

mixed-methods approach using quantitative data to test the intervention and qualitative data to explore and develop a deeper understanding of the treatment under study (Teddlie & Yu, 2007).

The original study design was to use a control group which would have allowed for comparative analysis, yet the difficulty recruiting an adequate number of volunteer participants resulted in the elimination of that component of the study. A small sample size, coupled with the loss of the control group, are the primary limitations of the design. The elimination of the control group created a threat to internal validity because one cannot eliminate the possibility that the process of maturation provided experiences that might impact efficacy.

A further threat to internal validity existed with the researcher's role within the organization. The researcher works in the district as a director, which may influence the behavior of the participants who could seek to portray themselves positively threatening the trustworthiness of results (Brink, 1993). To minimize the impact of status, the researcher intentionally worked to establish positive relationships with study participants to create trust and was transparent regarding the purpose of the study (Brink, 1993). The researcher further minimized interaction with principals and other administrators during visits to the participating teachers and made no other visits to those schools. Researcher bias is another potential threat validity with qualitative research. According to Brink, the first step is to acknowledge and be aware of the possibility of bias. The researcher's role within the district provided the motivation for the study and also provides the potential for feelings and assumptions that might impact interpretation of events. As a trained facilitator, the researcher has skills and practice to remain impartial during the reflective sessions to protect the integrity of the protocol. Further, the in vivo coding strategy was chosen to focus attention on the words of the teachers and not the potential assumptions of the researcher (Saldana, 2013). While the role of the researcher within

the organization has potential to threaten the validity of the study, efforts were made to minimize those threats.

Summary

In summary, the mixed-method study evaluated the outcomes and process for an intervention treatment that uses reflection and videotaped instruction as a tool with beginning teachers. The Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) was the primary instrument used to determine pre and post measures of personal teaching efficacy, complemented with qualitative analysis of a final summative interview. While the limitations of the study might not allow for generalizable outcome conclusions, the refining of a process that could have other applications for beginning teacher development is valuable to the district as a means of expanding services to support beginning teachers. The support of personal teaching efficacy, remains an important endeavor and past studies have shown that beginning teachers' personal teaching efficacy declines in their first year of teaching (Chester & Beaudin, 1996; Clark, 2009).

Table 7

Summary Matrix of Evaluation

Research Question	Variable	Data Source(s)	Data Analysis
RQ1: To what extent were each of the program components implemented as planned?	Adherence	Monitoring of Participant Participation	Degree of Adherence to Treatment Protocol
RQ2: What impact does video-based reflection have on the teaching efficacy of beginning teachers?	Personal Sense of Efficacy	Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001)	Wilcoxon Signed-Rank Statistical Test
RQ3: What are the participants' perceptions of the impact of the intervention treatment?	Outcome Perception	Post-Treatment Interview	Qualitative Coding Cycles: In Vivo and Descriptive Coding

Chapter Six: Findings

In this chapter, the results of the process and outcome evaluation are presented, and the implications of the findings are discussed with recommendations for further investigation. The purpose of this study was to determine the impact of a video-based induction strategy on the teaching efficacy of beginning teachers and evaluate the process used in the intervention strategy. Findings provide implications for further research and can be used to further shape the induction program in the researcher's district. The findings were derived from analysis of the observed and reported completion of treatment components, pre and post survey results from the Teachers' Sense of Efficacy scale (Tschannen-Moran & Woolfolk Hoy, 2001), and a post-treatment interview.

Findings of the Process Evaluation

The process evaluation was conducted to address RQ1: To what extent were each of the program components implemented as planned? The fidelity of implementation was measured by adherence to program components and the frequency of completion of each component. Results are displayed in Table 8.

Table 8

Fidelity Indicators by Participant

Participant	Adherence to Treatment Component: Number of Video-recordings	Adherence to Treatment Component: Number of Reviews of Video-recording	Adherence to Treatment Component: Number of Facilitated Reflection Sessions	Frequency: Number of Completed Cycles of Video-recording, Review, and Reflection
E1	6	6	6	6
M1	6	6	6	6
M2	6	6	6	6
M3	6	6	6	6
M4	1	1	1	1
M5	1	1	1	1
M6	6	6	6	6
M7	6	6	6	6
M8	6	6	1	1

Note. The treatment specified six instances of each component to complete six full cycles.

Participants self-reported the completion of the videotaped instruction and the review of the videotaped instruction, which were two of the three measures of adherence to program components. The researcher was also able to observe the use of notes, an aspect of the review component during the facilitated reflection and analysis, the final measured component. Six of the participants adhered to all of the components for the six cycles required by the intervention treatment, indicating high rates of fidelity. Two of the participants completed all three components of the treatment but declined to participate further after their initial session of the facilitated reflection. At her initial and only session with the researcher, a third participant. M8,

self-reported that she completed six recordings that she reviewed, although she did contact the researcher or respond to the researcher's attempt to contact her. When a meeting was finally arranged near the end of the study, she indicated that she wanted to continue but scheduled no further sessions with the researcher.

While six participants adhered to required components for the expected frequency, there were nuances in how treatment components were completed. Those nuances occurred in terms of the choice of content for the videos, the method participants used to review and record notes, and how they handled technical challenges.

Video-Recorded Instruction

With regards to the content of the videos, the researcher stipulated that a full sequence of instruction should be recorded, which was reported by participants as easily achieved because they often forgot it was recording while they were teaching. There was, however, choice in the class that was to be recorded, which for middle school teachers gave them multiple options because they taught different groups of students throughout the day. The choices that teachers made varied depending on their own personal purposes shared during the course of the reflective meetings and the post-treatment interview. In some cases, teachers opted for variety. For example, M1 reported that he strategically rotated through his classes so he could observe his interactions with each group. For others, there was value in consistently viewing the same group of students over time. For M6, a special education teacher who co-teaches, she began with a lesson in which she co-taught with a general education teacher but found more value in the lessons with her self-contained students. After her initial lesson, she decided to only record her one self-contained English class because of the limitations of her shared role in the class she co-

teaches. For the purpose of this study, the teachers had autonomy to decide what to record and were thus able to fully comply with the requirements.

Review of Videos and Note-Taking

Participants also reported that they watched the videos of their instruction in different ways. The Swivl application automatically uploaded each video to the participant's private online account when the recording is stopped. Some participants reported that they watched the video online using the application on the iPod Touch, while others reported that they watched exclusively on their laptops or desktops. Participant M2 reported that she preferred to watch on the iPod Touch because she felt it was easier to access. For M6, a teacher who did not have a classroom of her own, the iPod Touch was a mobile option that was more convenient for her to access.

Another way that participants differentiated their approach to the review component was with their note-taking. While a journal was provided, three of their participants took notes digitally and did not use the paper journal. The researcher was able to verify adherence to the requirement because of the use of notes, digital or in the paper journal, during the facilitated reflections.

Technical Challenges

It was intended that the reflective meetings would serve dual purposes as a reflective discussion and also a formative check of the adherence to component requirements, allowing the researcher to help trouble-shoot and provide support for the technical nature of the video-taping requirement if necessary. The shortfall of this strategy was that if the participants struggled with the recordings, they would not schedule a reflective meeting. The three participants who only completed one recording and facilitated discussion provided feedback in an interview that

consisted of the process evaluation questions from the post-treatment interview protocol. They shared varied reasons for not completing the required components. Reasons included being busy, feeling overwhelmed, and a lack of time because of busy schedules with testing and meetings. All three also mentioned frustration with the technology. Their frustrations centered on the need to have the iPod touch, the Swivl, and the Swivl marker all charged and connected prior to teaching. With the fast pace of their days, setting up was one additional task that was burdensome that they could not overcome. As one participant noted, "It seemed like so much work when I could just sit my phone on the shelf and do the same thing." One participant, M8, reported that she did use her phone for some of her recordings. Their experience was not shared by all participants. As M7 reported, "I'm already teaching everyday anyway, so it's not too difficult to have to get ready to do this…it was very easy to do. You just turn on the camera and do your normal day."

While the researcher emailed reminders and offered support, the three participants either did not respond or would suggest a future time period to resume, such as after the grading period ended or after testing. It was only at the close of the study that the participants talked of their experiences with technical challenges and how that impacted their ability to complete the requirements.

Summary of Findings for RQ1

The process evaluation focused on the extent to which each of the program components were implemented as planned as measured by adherence and frequency. Six of the nine participants completed each component of the reflective cycle adhering to the specified requirements. Those six participants further completed the reflective cycle six times, which was

the expectation for frequency. In terms of RQ1, the program components were implemented fully for six participants.

Findings of the Outcome Evaluation

The findings of the outcome evaluation focus on RQ2 and RQ3. The Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) was the primary measure to address RQ2: what impact does video-based reflection have on the teaching efficacy of beginning teachers? Participants took the pre and post survey, and the results for the overall sense of efficacy and the subscales of student engagement, instructional practices, and classroom management were independently analyzed using the Wilcoxon Signed-Rank statistical test. Participants that did not complete the requirements of the treatment were not included in the data analysis. In addition, the post-treatment interview was analyzed to deepen understanding of the impact of the treatment on beginning teachers to address RQ3, the teachers' perceptions of the impact of the treatment.

Analysis of RQ2: Teachers' Sense of Efficacy

Responses from the Teachers' Sense of Efficacy Scale were reviewed for completeness, and then scores that reflect the mean for each participant were calculated (Tschannen-Moran & Woolfolk Hoy, 2001). The data results for the overall sense of efficacy are shown in Table 9.

Table 9

Data Analysis of Teachers' Sense of Efficacy

Participant	Pre-Treatment Score	Post Treatment Score	Difference	Rank of |Difference|	Signed Rank of Difference	
E1	6.75	7.37	0.63	5	5	
M1	7.25	7.54	0.29	4	4	
M2	7.29	7.50	0.21	3	3	
M3	7.92	7.88	-0.04	1	-1	
M6	7.63	8.58	0.96	6	6	
M7	6.13	6.08	-0.05	2	-2	
					18	Positive Sum
					-3	Negative Sum
					3	T_{obt}
					2	Tcrit ($p<.05$ one-tailed)
					Retain Null	Decision

To obtain the test statistic, the mean of the Teachers' Sense of Efficacy (TSE) scores prior to the treatment was compared to the post-treatment TSE scores. The absolute value of the differences were ranked. The signed ranks were then added to create a positive and a negative sum. The lower of the two sums, three, is considered the test statistic (T_{obt}). The critical value for $p<.05$ for the level of significance for a one-tailed test is two, when N=6. For the overall TSE, the T_{obt} is three; thus, the null hypothesis is retained. The intervention treatment was not shown to increase the TSE.

Analysis of efficacy in student engagement. Unweighted means were calculated for items related to the factor of student engagement to determine a pre and post survey score for Efficacy in Student Engagement (ESE). An example of an item that represents the factor of student engagement is: How much can you do to get students to believe they can do well in school work? The data analysis for ESE is shown in Table 10.

Table 10

Data Analysis of Efficacy in Student Engagement

Participant	Pre-Treatment Score	Post Treatment Score	Difference	Rank of |Difference|	Signed Rank of Difference	
E1	6.50	7.13	0.63	3.5	3.5	
M1	7.30	7.30	0			
M2	7.38	7.63	0.25	2	2	
M3	8.38	7.75	-0.63	3.5	-3.5	
M6	7.63	8.63	1	5	5	
M7	5.63	5.50	-0.13	1	-1	
					10.5	Positive Sum
					-4.5	Negative Sum
					4.5	T_{obt}
					0	T_{crit} ($p<.05$ one-tailed)
					Retain Null	Decision

To obtain the test statistic, the process described previously was followed. For ESE, one participant showed no difference in the pre and post treatment score so that score was unranked and not computed in the rankings. With two participants tied for a rank, the rank for both becomes the average for the ranks they span, which in this circumstance are ranks three and four. The critical value for $p<.05$ for the level of significance for a one-tailed test is zero, when N=5. For ESE, the T_{obt} is 4.5, thus the null hypothesis is retained. The intervention treatment was not shown to increase the ESE.

Analysis of efficacy in instructional practices. Unweighted means were calculated for items that load on the factor of instructional practices to determine a pre and post survey score for Efficacy in Instructional Practices (EIP). An example of an item that represents the factor of instructional practice is: How much can you do to adjust your lessons to the proper level for individual students? The data analysis for EIP is shown in Table 11.

Table 11

Data Analysis of Efficacy in Instructional Practices

Participant	Pre-Treatment Score	Post Treatment Score	Difference	Rank of |Difference|	Signed Rank of Difference	
E1	6.88	7.50	0.62	3	3	
M1	7.38	7.63	0.25	1	1	
M2	7.00	7.50	0.50	2	2	
M3	7.25	8.00	0.75	4	4	
M6	7.13	8.13	1	5	5	
M7	6.63	6.63	0			
					15	Positive Sum
					0	Negative Sum
					0	T_{obt}
					0	T_{crit} ($p<.05$ one-tailed)
					Reject Null	Decision

To obtain the test statistic, the process described previously was followed. For EIP, one participant showed no difference in the pre and post treatment score so that score was unranked and not computed in the rankings (Pagano, 1998). The critical value for $p<.05$ for the level of significance for a one-tailed test is zero, when N=5. For EIP, the T_{obt} is zero, thus the null hypothesis is rejected and the alternative hypothesis accepted. The intervention treatment was shown to increase EIP.

Analysis of efficacy in classroom management. Unweighted means were calculated for items that load on the factor of classroom management to determine a pre and post survey score for Efficacy in Classroom Management (ECM). An example of an item that represents the factor of classroom management is: How much can you do to calm a student who is disruptive or noisy? The data analysis for ECM is shown in Table 12.

Table 12

Data Analysis of Efficacy in Classroom Management

Participant	Pre-Treatment Score	Post Treatment Score	Difference	Rank of |Difference|	Signed Rank of Difference	
E1	6.88	7.50	0.62	3.5	3.5	
M1	7.13	7.75	0.62	3.5	3.5	
M2	7.50	7.38	-0.12	1	-1	
M3	8.13	7.88	-0.25	2	-2	
M6	8.13	9.00	0.87	5	5	
M7	5.00	6.00	1	6	6	
					18	Positive Sum
					-3	Negative Sum
					3	Test Statistic (Tobt)
					2	Tcrit (p<.05 one-tailed)
					Retain Null	Decision

To obtain the test statistic, the process described previously was followed. With two participants tied for a rank, the rank for both becomes the average for the ranks they span, which in this circumstance are ranks three and four. The critical value for $p<.05$ for the level of significance for a one-tailed test is two, when N=6. For the ECM, the T_{obt} is 3, thus the null hypothesis is retained. The intervention treatment was not shown to increase the ECM.

Analysis of RQ3

To assist in developing a deeper understanding of the impact of the treatment, all participants took part in summative post-treatment interviews to address RQ3: what are the participants' perceptions of the impact of the intervention treatment?. The interviews were recorded, transcribed, and analyzed using NVivo Pro version 11 software. With the exception of one teacher, all participants agreed that the treatment intervention had helped them as beginning

teachers. Their responses revealed four areas of impact: instructional practice, student engagement, confidence, and reflection. For the purpose of the analysis, impact was defined as change from pre-treatment attitudes or behaviors to post-treatment.

Instructional practice. Participants noted that reflecting on their video-recordings led to improvement in their practice and attributed this to the video component. M2 distinguished reflecting from memory and reflecting using the video. She noted:

> It just exposed me to things I wouldn't have seen or known otherwise. It's one thing to reflect on a lesson after you've taught it just based on what you remember or think that you remember went wrong or right, but I mean watching it is cut and dry. It's right there.

Watching the video also allowed participants to focus on areas to improve. The idea that video allowed them to notice more than they would have otherwise was a common theme among all participants. E1 noted that the video allowed her to see what she physically could not during the lesson:

> It was truly good to see what is really going on in the rest of my class, which was super helpful when I had to write things on the board. My back is to them for admittedly two seconds, but still what is really going on.

M7 reported that the video allowed her to watch herself and commented:

> It opened my eyes to things I've that I've never seen. Even things as simple as walking around, making sure you move around the entire room. Tone of voice as you're teaching, like, are you getting annoyed easily? Body language, things like that that you don't normally see.

Having a more complete picture of classroom interactions, including their own behaviors, allowed participants to focus and find areas for improvement. Several participants made the distinction that the changes were not "drastic" changes, but rather small, incremental changes.

M1 noted that watching the video helped him notice and focus on his own specific behaviors and noted that it wasn't "necessarily things that I'm bad at but things that I didn't do during this unit. Next time I do this class I'm definitely going to hit on that." E1 and M2 both echoed the idea of making "small tweaks" to their teaching.

Improved practices. Each participant could specify some aspect of their teaching that had been tweaked or improved as a result of the treatment. The most common area of focus was in giving directions to students. E1, M1, M2 M3, M6 and M7 all referred to noticing an element of their ability to give directions that needed improvement and sought ways to address that issue. For E1, M1, M3, and M6, their focus on direction-giving was clarity, because they realized that they were rushing directions and made assumptions about students' understanding of the task. M2 was surprised to hear how often she repeated directions and noticed this enabled some students to be inattentive. M7 described her thinking about directions like this:

> From what I saw, it allowed me to go deeper and look more at me than the students. And again, like directions being clear, they're little things that I wouldn't think to analyze and reflect upon but the next time I go to do it, making sure that you spend more time giving directions, or make sure you spend more time thinking about the strategies you're going to use and how you're going to explain them. Because it was easy to throw them in groups before or just say we're going do this whole class, but then looking at the video there were better ways.

Other common teacher behaviors noticed and addressed were varying movement and proximity and using strategies that increased student accountability and participation. For example, M7 recognized that the whole class instruction in her first lesson did not allow her to effectively monitor students' understanding during the lesson. She co-teaches with a special education teacher and was able to use the space in her classroom and grouping strategies to allow both her and her partner to facilitate small groups allowing greater proximity and student participation.

Experimentation. Several of the participants used the opportunity of the video and reflection cycles to experiment and try new instructional strategies. E1 had an ongoing challenge with a student that illustrated this approach to experimentation. The student was a special education student who was prone to extended disruptive outbursts. While the teacher became better at anticipating and managing his behavior, the challenge became instructional when she noticed the amount of time the other students were off-task or unproductive while she addressed the outburst. This realization was the impetus for a shift from more whole class instruction to varied instructional strategies that could continue without her direct facilitation, including cooperative learning or group activities. The shift occurred gradually, initially with the preparation of ready-to-go activities that students could begin if there was a disruption. When that was successful, she recognized the ability of her students to work independently and began incorporating more flexible and small group activities, applying her developing skills in small group instruction in reading to other activities. She noted that anyone who observed her class at the beginning and observed her again now would note the drastic changes which have enabled her "to feel comfortable in my teaching style."

M1 experimented with strategies to improve student participation. During his post-treatment interview he concluded, "I've improved upon the one big thing I think we talked about from day one, keeping students engaged. Not just my main core group of kids that are always engaged, keeping the kids that maybe struggle engaged as well." Using a Socratic Seminar was one new strategy that he implemented. After watching the video of his implementation, he was able to note refinements that he tried later in the study. Of his six cycles, he intentionally implemented new strategies or a variation of a previous strategy in four of them, each focused on increasing student participation and engagement in learning.

Student engagement. Interactions with students and the relationships between the participants and their students were a dominant theme in the reflective discussions and continued to be discussed in participants' post-treatment interviews. For most of the participants, especially the middle school teachers, their interactions with students were viewed as positive, and they often referred to these interactions as what they enjoyed most about teaching. Some examples of how they described their feelings about their relationships with students were:

- When I got into teaching, I was really excited about…the relationships and having those students that really were kind of friends in a sense and I realized that through watching it, I can see my interactions with kids; I can see how they come to me just to tell me something small or they come to tell me a story. (M2)
- I know that that's my primary focus before I even came here. I teach kids. I'm more so concerned with who they are and I want them to know that I'm concerned with that more so than a lesson I can teach them. (M3)

For both of these teachers, their exposure to video-recordings of their interactions prompted reflection and new realizations.

During her first reflective discussion, M2 noted her use of sarcasm and humor, which she felt that middle school students enjoyed and helped her be relatable to her students. During her post-treatment interview, she acknowledged that she continued to note and reflect on that element of herself. In the beginning, she felt that "I like this. This is part of who I am." But as she looked and thought deeper, she recognized that the tone of voice and sarcastic comments sometimes revealed her frustration and annoyance with students. She did not like how she came across or how she perceived that her students responded to her in those moments. Her final thoughts were that humor or sarcasm can be a part of who she is but that she needs to find ways to deal with her emotions of anger, frustration, and annoyance in ways that are not directed at students. For M2, this realization was the most significant learning of the study.

M3 also prided himself on his relationships with students. He noted that he looks for ways to bond with them and tries to teach with examples that are relevant to students to show that he is relatable. In watching the videos, he noted positive examples of his interactions with students. For him, his realization was the struggle for the need for balance. For example, he recalled a time when he asked a student in the middle of a lesson if the student made the team. He wanted students to know that he cared about their education but that he also cared about them as a person. He felt the videos really brought out his efforts to connect with students, and he felt the need to more strategically note those opportunities and make decisions to support not just the students but the continuity of his instruction.

Confidence. From the beginning of the study, several participants revealed their insecurities regarding their teaching. For example, in her initial communication with the researcher, M8 wrote:

> I should warn you and you are probably already aware of this, but new teachers (especially this one) are pretty emotional and I suspect that this process will bring all of that out and more. So if you're not afraid of tears, let's do it! (M8, personal communication, November 11, 2016)

While M8 did not complete all of the facilitated reflection meetings, she noted that she really wanted to because she felt it was important because of the affirmation she received in watching them. She was able to tell herself "I know you did do a good job here. You did do this. You did rock it that day." She noted that she graduated from college in August, and in the same month began as a teacher and struggled with the transition from student to teacher and the realization that she was now "the adult in the room." According to her, watching the videos helped her realize that "I am the teacher."

Another participant, M7, also admitted to feeling unsure of herself. In watching the videos, however, she realized that even though she experienced nervousness teaching new curriculum for the first time, "it doesn't come across that way." She was able to see that the "kids do get what they want out of it." E1 had similar anxiety, but watching her videos affirmed that she was doing "a really good job." Like M7, she noted that her inner feelings were not visible when she watched herself. Her conclusion was:

> For not having any idea of what I'm doing most of the time, it's coming across like I know what I'm talking about. So, I can interpret that, "Yeah I actually do know what I'm talking about and it's really working."

Watching the videos and reflecting on their performance allowed both M7 and E1 to feel that they were exhibiting more confidence than they might have internally felt, which affirmed positive feelings about their abilities as teachers. These verbalized feelings of positive reflection

on their teaching practice support the suggestion that the video reflection process contributes to the development of a teacher's sense of efficacy.

During his reflective sessions, M3 would often discuss his worries about unsuccessful lessons in which he did everything he thought he was supposed to do but the students did not perform as he expected on assessments. In his post-treatment interview he concluded:

> I think that I'm getting better, I really do. I think it may not seem like it, but I'm becoming more observant and more detailed. I can see where I came from, and I can remember the first day of class and how things were. How lessons would go. I think I'm not where I need to be but I'm a lot more sound than what I previously was.

For M3, he was able to see growth in his teaching, and while acknowledging that he still had room to improve, he felt positively about how far he had progressed. The acknowledgement of growth is similar to Bandura's (1977) notion of mastery experiences as an influence of teaching efficacy.

While some participants struggled with insecurities, M6 felt the process confirmed her self-assessment. She said, "I thought I was really good in the classroom and this just kind of confirmed it, you know. I just didn't want to say that." Unlike the other participants, M6 felt that her memories and perceptions of classroom interactions were accurate and matched with what she observed in the video.

Reflection. While M6 felt that her prior reflective practices were already satisfactory without the use of video, other participants noticed changes in their attitude towards reflection, as well as in their ability to reflect. While reflection contributed to changes in instructional practice, student engagement, and confidence, this section explores changes in approaches to

reflecting or attitudes regarding reflecting. For example, M3 acknowledged that his attitude towards reflection had changed. He concluded:

> The reflection is a skill. If nothing else I think it's shown me just how important it is. I think we talked about it before. I went to the College of William and Mary, and they talked a great deal about reflection. To me, it was just unnecessary. I could see why, but it was just a step that I didn't have to take. Now I see it as extremely important; it leads to everything.

Others noted that the video allowed them to reflect on observed behavior and not just memories or feelings. M1 reported:

> I think that without video it's more of a feel thing. You're just guesstimating. Like, okay how did I feel? How did I feel that that went? When you actually get to watch it, see it without a doubt how it went you can see things that you were good at, things that you did poorly at and how to improve moving forward.

M3 commented on the difference in reflecting on video with regard to her memory and what she was able to notice:

> Off the top, just like when you came in here, I can't remember what I did yesterday. My memory is pretty good but so much happens. To be able to record myself and to look back at it like, "Oh, you didn't even notice that," or, "That's what happened!" I probably wouldn't [have] remembered that. It's definitely helped me critique myself.

Participant M2 spoke specifically to how watching the video twice allowed for deeper analysis. She noted, “The first time I pinpointed things I liked a lot. And then the second time, I think I looked for things that I wasn't a fan of more, if that makes sense. I found something I didn't like and then I looked for it more. So I think maybe I paid closer attention to things I

needed to fix in order to figure out a way to fix them." She noted that as a beginning teacher, she does not have experiences to look back on and remember what went well. For her, there was value in finding time to use current experiences to reflect and carry on what she learned to a lesson the next class or the next day.

M7 discussed how reflection fulfilled a need she had for feedback. When she was student teaching, she received feedback on her teaching from her mentor but acknowledged that it was not always constructive. As a beginning teacher without too many formal observations, she was not receiving feedback on a regular basis. She felt this process of reviewing her recorded lessons required her to focus on what she could do to be better. She felt she learned "to critique myself and see what I can do to improve, different strategies that I can use."

Summary of Outcome Evaluation Analysis

While results did not indicate impact of the treatment on participants' overall sense of teaching efficacy or the subfactors of efficacy in student engagement and classroom management, results from the pre and post survey data showed that the treatment had a positive impact on the participants' efficacy in instructional practices. This aligned to the qualitative results of the analysis of the post-treatment interviews in which participants were able to articulate positive changes to their instructional practices. This articulation of positive feelings regarding their teaching or the improvement in their teaching suggests the treatment contributed to the development or the maintenance of positive perceptions of efficacy. While a couple of participants referenced realizations related to student engagement, the discussion throughout the study during reflective sessions and during the post-treatment interview always referred to the strong relationships between the participants and their students, indicating that this was already an area of confidence and strength for the participants. Other outcomes surfaced during the

interviews were positive improvements to participants' attitudes toward and capacity with reflection and their confidence as a teacher. The verbalization of statements of confidence and acknowledgements of growth and improvement suggest that the treatment activities support the teachers' positive perceptions of their abilities and sense of efficacy.

Discussion

This research study addressed three questions: the fidelity of implementation of the intervention treatment, the impact of video-based reflection on beginning teachers' sense of efficacy and the teachers' perceptions of the impact of the treatment. The results of the study suggest that video-based reflection has an impact on the sense of efficacy for instructional strategies, which was supported by participants' own perceptions of the impact. The use of video was selected because it supported performance accomplishment, one of the four sources of input that inform one's sense of efficacy (Bandura, 1977). By participating in a series of cycles of performance, review, and reflection, the intent was that teachers would be able to refine their practice, supporting their sense of performance accomplishment.

Instructional practices are perhaps the most readily observable teacher behaviors for beginning teachers to select and adapt, which might be why the participants focused on changes to instructional practices during the post-treatment interviews. This focus on instructional practices also aligns with the novice stage of skills acquisition in which beginning teachers have theoretical knowledge but lack the experience to fluidly make decisions and apply that knowledge in diverse situations (Dreyfus & Dreyfus, 1980). Several of the teachers referred to the small changes and tweaks that they made, which were significant enough that they were able to report that they learned and benefited from participation. The three months of the study might

not have provided the duration necessary for teachers to experience successful growth in multiple aspects of their teaching.

In terms of measuring the adherence to treatment, the study had a high rate of fidelity, albeit with a smaller sample than projected. While the district hired a record number of teachers this year, more than half were not beginning teachers. Recruiting beginning teachers to participate in a study proved challenging. While all teachers in the district must complete a specified number of professional learning hours each year, there are ample opportunities to do so, many occurring at each school, which is convenient for beginning teachers learning to balance the demands of the position. Those demands of the position also made it difficult for some who started the study to continue. Implications for future implementation are discussed in the recommendations.

Limitations

As discussed in the previous chapter, the design of the study was limited from the onset by the small sample size and then further limited by the elimination of the control group. Even if a control group was implemented, it is possible that no effect of the intervention would have been shown, which might suggest that the study did not have enough statistical power to show an effect or that the intervention truly had no effect. Because of those resulting changes, the findings have limited conclusion validity. While, the small number of participants limits the generalizability of the study, the qualitative findings provide insights to the impact of the treatment that provide direction for future research and consideration for continued expansion as an induction support for beginning teachers in the district.

Recommendations

In considering any future use of video as a tool for reflection, primary consideration must be given to reducing risk for participants. Almost all of the participants expressed nervousness about the process of recording themselves and even indicated that peers had called them "brave." This study was designed to reduce risk by placing the control of the videos in the hands of the teachers. They were the only ones who had access to their videos and could make all decisions on when and if videos would ever be shared. Taking away that decision-making would increase the risk and would likely decrease the teachers' willingness to participate.

Additional consideration for use of video-based reflection as an induction strategy should include the integration of the strategy with existing structures of support. For some of the teachers in the study, the treatment was too much to add to their already busy days. Yet, each attended professional learning and met with mentors, so rather than structuring the intervention as an additional support, it is recommended that it be used to enhance the support provided through existing practices.

From a research perspective, there are additional questions to explore in terms of the use of video to aid teachers' reflective practices and methods to support teachers' sense of efficacy. Replication of this study with larger samples and variations of the reflective process, perhaps with a focus on specific instructional practices, would add to the understanding of the experiences that support positive changes to efficacy and lead to continued growth and development.

In addition, there are aspects of this study that could provide further research opportunities. While participants were required to take notes to record their observations, those notes were not collected or reviewed. The teachers' observation notes would yield further insight

by analyzing changes, as would the transcriptions of the reflective discussions. While this study design was very open in terms of how notes were taken, a directed approach could provide information on how different note-taking formats might impact teacher reflection. Video annotation tools are becoming more readily available and allow users to add direct comments to a marked video segment, which allow easy return to specific segments and could aid in identifying patterns of behavior (Rich & Trip, 2011).

Participant recommendations. The participants valued their experience and felt that video-based reflection did help improve their instructional practice, which is significant for those who serve the professional learning needs of beginning teachers. When the participants were asked what might improve the experience, the idea of reviewing the videos with others surfaced in different ways. One participant, M6, felt she would have been more focused and would have benefitted from a coach or mentor to provide a different perspective. M5 also felt she would have benefitted further if she had been directed to have a focus because when left to view and reflect on her own, she "wanted to see everything." M8, who was one of the participants who was unable to complete the reflective meetings, agreed that a school-based coach working with her on the reflection and analysis would have helped her be more accountable to the cycle. M3, who actually kept the equipment in order to keep video-recording himself, thought that he would have benefitted from participating with a group of teachers to share video segments and problem solve together. Both M3 and E1 would often attempt to solicit guidance during their sessions, which were redirected by the researcher with reflective questions. Those instances, as well as the feedback in the post interview, indicate that some beginning teachers would welcome video-based reflection cycles as a tool used by coaches or mentors or in a learning group with peers.

Summary

Improving the district induction program to support the varied developmental needs of beginning teachers was the problem of practice that spurred this study. The initial needs assessment revealed that beginning teachers felt that the current induction support was not relevant, timely, or differentiated to their needs, as discussed in chapter three. The research question that this study addressed was the impact of video-based reflection on beginning teachers' sense of efficacy. Beginning teachers sometimes struggle to apply the theoretical knowledge gained in their pre-service education because their experience limits their ability to apply that knowledge (Dreyfus & Dreyfus, 1980). This stage is potentially damaging to a beginning teachers' sense of efficacy as they question their instructional decisions and grapple with doubt. Hoy and Spero (2005) posit that a high sense of efficacy during this stage of learning how to teach may be necessary in order to respond to doubts in positive ways (Hoy & Spero, 2005). A lower sense of efficacy can lead to avoidance of risk and diminished growth during the formative first year. For this reason, a strategy of video-based reflection was chosen to capitalize on the authentic experiences of beginning teachers. As teachers participated in six cycles of video-recording, review and note-taking, and facilitated reflective discussion, it was intended that teachers would refine practices and experience a sense of performance accomplishment, a strong input that shapes teachers' sense of efficacy (Bandura, 1977).

The six participants in the study who completed all components of the study with high fidelity did not show an effect in the Teachers' Sense of Efficacy scale in terms of their overall efficacy, efficacy in classroom management, and efficacy in student engagement. There was an effect shown in efficacy in instructional practices, which was also a dominant theme of participants' own perceptions of the impact of the study. This suggests that video-based

reflection might be a valuable induction strategy to assist beginning teachers in bridging the gap from theoretical knowledge to application.

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Appendix A

Virginia Standards for the Professional Practice of All Teachers (Virginia Department of Education, 2011)

Standard One: Professional Knowledge

Teachers demonstrate an understanding of the curriculum, subject content, and the developmental needs of students by providing relevant learning experiences.

- Key Element 1: Teachers understand how students learn and develop, and provide learning opportunities that support their intellectual, social, and personal development.
- Key Element 2: Teachers understand the central concepts, structures, and processes of the discipline(s) they teach and create learning experiences that make these aspects of subject matter meaningful to students.
- Key Element 3: Teachers address appropriate curriculum standards and establish instructional goals that demonstrate a deep knowledge of their students and subject matter content.

Standard Two: Instructional Planning

Teachers plan using the Virginia Standards of Learning, the school's curriculum, effective strategies, resources, and data to meet the needs of all students.

- Key Element 1: Teachers design coherent instruction based upon knowledge of subject matter, students, the community, and curriculum goals.
- Key Element 2: Teachers use the input and contributions of families, colleagues, and other professionals in designing instruction that promotes student growth.
- Key Element 3: Teachers plan instruction to achieve objectives that reflect the Virginia Standards of Learning and division curriculum guidelines.

- Key Element 4: Teachers use student learning data to develop appropriate short- and long range instructional plans and adjust plans based on student needs and changing circumstances.
- Key Element 5: Teachers choose appropriate strategies, resources, and materials to differentiate instruction for individuals and groups of students and develop appropriate sequencing of learning experiences.
- Key Element 6: Teachers collaborate with colleagues within and across content areas and grade levels to select and create learning experiences that are appropriate for curriculum goals, based on school improvement plans, relevant to learners, and based on principles of effective instruction.

Standard Three: Instructional Delivery

Teachers effectively engage students in learning by using a variety of instructional strategies in order to meet individual learning needs.

- Key Element 1: Teachers differentiate instruction to accommodate the learning needs of all students.
- Key Element 2: Teachers implement, evaluate, and adapt multiple delivery methods and instructional strategies to actively engage students in learning and enhance student learning.
- Key Element 3: Teachers communicate clearly and check regularly for understanding.
- Key Element 4: Teachers know when and how to access and integrate resources to support student learning (e.g., field and educational experts, exceptional education specialists, language learner specialists, community organizations).

Standard Four: Assessment of and for Student Learning

Teachers systematically gather, analyze, and use all relevant data to measure student academic progress, guide instructional content and delivery methods, and provide timely feedback to both students and parents throughout the school year.

- Key Element 1: Teachers work independently and collaboratively to analyze and interpret multiple sources of data to identify student learning needs, to guide planning and instruction, and to assess the effectiveness of instruction.
- Key Element 2: Teachers communicate specific performance expectations and use a variety of assessment strategies to monitor and document student progress and to provide meaningful feedback to students and parents.
- Key Element 3: Teachers engage students in understanding, identifying, and assuming responsibility for quality work and provide them with timely, frequent, and effective feedback to guide their progress toward that work.
- Key Element 4: Teachers set measurable and appropriate goals for students based on baseline data and accept responsibility for providing instruction that will enable students to achieve those goals.

Standard Five: Learning Environment

Teachers use resources, routines, and procedures to provide a respectful, positive, safe, student-centered environment that is conducive to learning.

- Key Element 1: Teachers create a safe and positive learning environment.
- Key Element 2: Teachers manage classroom procedures to maximize academic learning time to ensure continuous student engagement in learning.
- Key Element 3: Teachers develop and maintain rapport with students.

- Key Element 4: Teachers create for all students a respectful, supportive learning environment that encourages social interaction, active engagement in learning, and self-motivation.
- Key Element 5: Teachers collaborate with colleagues to develop consistent policies and procedures that create a school culture conducive to learning.

Standard Six: Professionalism

Teachers maintain a commitment to professional ethics, communicate effectively, and take responsibility for and participate in professional growth that results in enhanced student learning.

- Key Element 1: Teachers work in partnership with families to promote student learning at home and in the school.
- Key Element 2: Teachers collaborate with administrators, colleagues, families, and community members to promote and support student success.
- Key Element 3: Teachers model professional and ethical standards as well as personal integrity in all interactions.
- Key Element 4: Teachers respect the privacy of students, families, colleagues, and administrators with whom they work, ensuring confidentiality of all sensitive information.
- Key Element 5: Teachers continually reflect on, evaluate, and seek to improve their practice.
- Key Element 6: Teachers take responsibility for and participate in a meaningful and continuous process of professional development.
- Key Element 7: Teachers effectively use standard oral and written English in all communications.

Appendix B
Administrator Interview Protocol

1. How many beginning teachers did you have under your supervision this school year? For the purpose of our discussion, beginning teachers are defined as teachers who are in their first year of teaching.
2. How many probationary teachers did you have under your supervision this school year? Probationary teachers are teachers with three or less years of experience.
3. In thinking of the teacher evaluation standards and proficiencies, are there any areas that are consistent areas of weakness among the beginning teachers you supervise? If so, what are they?
4. In thinking of the teacher evaluation standards and proficiencies, are there any areas that are consistent areas of strength among the beginning teachers you supervise? If so, what are they?
5. How do you see the developmental needs of the beginning teacher change as they transition from their first year to their second or third year of teaching?
6. Can you describe what support or resources are available to beginning or probationary teachers in your building?
7. In your experience, what strategies have shown to be most effective in assisting beginning and probationary teachers in developing proficiency in teaching?

Appendix C
Informed Consent Form

Johns Hopkins University
Homewood Institutional Review Board (HIRB)

Informed Consent Form

Title:	Video-based Reflection of Beginning Teachers
Principal Investigator:	Eric Rice, PhD, Assistant Professor, Johns Hopkins University
Date:	July 2015

PURPOSE OF RESEARCH STUDY:

The purpose of this research study is to explore the impact of reflection and analysis of video of one's own instruction on self-perception of teaching performance.

We anticipate that approximately 20 teachers will participate in this study. A minimum of 10 teachers will be randomly selected to participate in the study in the fall semester. Teachers not selected will have the opportunity to participate in the study's professional learning activity in the spring semesters.

PROCEDURES:

Selected participants will be asked to videotape an instructional segment of their choice (lesson or activity) biweekly September through November and reflect and analyze their video recording according to specified criteria found in the teacher evaluation rubric. The reflection and analysis will be facilitated by a non-evaluative researcher, who will audio-record the session. The reflection and analysis session will be approximately 45 minutes for each of the six videotaped lessons. At the conclusion of the study, in December, participants will be asked to participate in an interview regarding their experience. It is anticipated that the interview will take an hour, and it will be audio-recorded. All participants will take a brief survey at the beginning and end of the study.

RISKS/DISCOMFORTS:

The risks associated with participation in this study are no greater than those encountered in daily life.

BENEFITS:

It is expected that participants will benefit from learning more about their instructional practice. As a professional learning activity, participants will receive professional learning credit for the hours of participation.

This study may benefit society if the results lead to a better understanding of the use of reflection and analysis of video as a tool for supporting the development of beginning teachers.

VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW:

Your participation in this study is entirely voluntary: You choose whether to participate. If you decide not to participate, there are no penalties, and you will not lose any benefits to which you

Title: Video-based Reflection of Beginning Teachers
PI: Eric Rice, PhD, Assistant Professor, Johns Hopkins University
Date: July 2016

would otherwise be entitled.

If you choose to participate in the study, you can stop your participation at any time, without any penalty or loss of benefits. You may withdraw from the study and continue to participate in the professional learning activity. If you want to withdraw from the study, please contact Janene Gorham via email at jkgorham@vbschools.com or 757-619-0588.

ALTERNATIVES TO PARTICIPATION:

This study offers a professional learning activity to participants. For other professional learning activities available to beginning teachers, please contact the Office of Professional Growth and Innovation at 757-263-6972.

CONFIDENTIALITY:

Any study records that identify you will be kept confidential to the extent possible by law. The records from your participation may be reviewed by people responsible for making sure that research is done properly, including members of the Johns Hopkins University Homewood Institutional Review Board and officials from government agencies such as the National Institutes of Health and the Office for Human Research Protections. (All of these people are required to keep your identity confidential.) Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. You control access to the videos of your classroom instruction during the study and may retain the videos for your records. The videos are for your use as part of this study and will not be accessed, retained or used for any other purpose.

Summary data for the hours of participation will be reported to the Office of Professional Growth and Innovation for credit as a professional learning activity.

COMPENSATION:

If you satisfactorily complete the professional learning activity that is included in the study, you will receive up to 18 hours of professional learning credit to compensate you for your participation. If you end your participation in the professional learning activity, you will receive credit for your participation up to that time. If you withdraw from the study and choose to complete the professional learning activity, you will receive professional learning credit for participating in and completing the professional learning activity.

IF YOU HAVE QUESTIONS OR CONCERNS:

You can ask questions about this research study now or at any time during the study, by talking to the researcher(s) working with you or by calling Janene Gorham at 757-619-0588.

If you have questions about your rights as a research participant or feel that you have not been treated fairly, please call the Homewood Institutional Review Board at Johns Hopkins University at (410) 516-6580.

SIGNATURES

WHAT YOUR SIGNATURE MEANS:

Title: Video-based Reflection of Beginning Teachers
PI: Eric Rice, PhD, Assistant Professor, Johns Hopkins University
Date: July 2016

Your signature below means that you understand the information in this consent form. Your signature also means that you agree to participate in the study.
By signing this consent form, you have not waived any legal rights you otherwise would have as a participant in a research study.

Participant's Signature	**Date**
Signature of Person Obtaining Consent (Investigator or HIRB Approved Designee)	**Date**

Appendix D

The Virginia Standards for the Professional Practice of Teachers: Supplemental Document A-Inquiry Format (Virginia Department of Education, 2011)

Part 13: The Virginia Standards for the Professional Practice of Teachers: Supplemental Document A - Inquiry Format

Standard One: Professional Knowledge

Teachers demonstrate an understanding of the curriculum, subject content, and the developmental needs of students by providing relevant learning experiences.

Key Element 1: *Teachers understand how students learn and develop and provide learning opportunities that support their intellectual, social, and personal development.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. As I establish appropriate learning goals for my students, how can I consistently convey my belief in their ability to be successful learners?

B. How does my knowledge of the physical, social, emotional, and cognitive development of my students influence my plans for instruction?

C. What efforts have I made to accommodate my students' differences in development and their diverse abilities and talents?

D. How do I acknowledge the language, values, and cultural traditions of my students' families and communities in ways that build understanding and respect for others?

E. What evidence do I see that my students are actively engaged in learning and are making progress in taking responsibility for their own learning?

F. What do I do to help my students reflect the attitudes and behaviors of good citizenship at school and in the community?

Key Element 2: *Teachers understand the central concepts, structures, and processes of the discipline(s) they teach and create learning experiences that make these aspects of subject matter meaningful to all students.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How am I using national, state, and local standards within my content area(s)?

B. What new resources and techniques in my content area(s) am I using?

C. How do I stay abreast of current research, diverse perspectives, and new strategies within my discipline(s)?

43

D. How do I create learning experiences that allow students to integrate the knowledge, skills, and methods of inquiry used in the discipline and link them to prior learning?

Key Element 3: *Teachers address appropriate curriculum standards and establish instructional goals that demonstrate a deep knowledge of their students and subject matter content.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How do my instructional plans align with the Virginia Standards of Learning and my division's curriculum scope and sequence?

B. What are relevant characteristics of my class that I need to consider when establishing my instructional goals?

C. How have I addressed the needs of individual students in my class in establishing my long- and short-term instructional goals?

D. What unique aspects of my discipline should I consider when determining the most effective ways of addressing curriculum standards?

Standard Two: Instructional Planning

Teachers plan using the Virginia Standards of Learning, the school's curriculum, effective strategies, resources, and data to meet the needs of all students.

Key Element 1: *Teachers design coherent instruction based upon knowledge of subject matter, students, the community, and curriculum goals.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. Have I aligned my instruction with the curriculum scope and sequence?

B. How have I encouraged my students to develop skills and understand concepts in addition to mastering facts?

C. When selecting resources and literature, how do I decide if they are relevant, appropriate, and sufficiently current to meet the needs of all of my students?

D. What connects this lesson to my students' prior learning?

E. How do my lessons reflect the goals and needs of the school and community?

F. How do I link my students' learning to their community beyond the school?

G. How do I make my lessons relevant to my students' lives and experiences?

Key Element 2: *Teachers use the input and contributions of families, colleagues, and other professionals in designing instruction that promotes student growth.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How have I sought the insight of parents in identifying their child's strengths and needs that will help me plan instruction that is responsive to these strengths and needs?

B. What resources within my school and community have I tapped to support student learning?

C. What additional expertise might I seek to plan instruction that meets the needs of all of my students?

Key Element 3: *Teachers plan instruction to achieve objectives that reflect the Virginia Standards of Learning and division curriculum guidelines.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How do I ensure that my instruction aligns with division guidelines and the *Virginia* Standards of Learning?

B. How do the learning activities that I select or design connect to my stated instructional goals and objectives?

Key Element 4: *Teachers use student learning data to develop appropriate short- and long-range instructional plans and adjust plans based on student needs and changing circumstances.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. What student learning data have I used to inform my short- and long-term instructional goals?

B. How do I adjust my instruction based on my current assessment of students' mastery and understanding?

C. What do I know about my students' strengths and needs that will help me choose appropriate instructional goals and strategies?

D. How do I use data about the achievement of my students to make instructional decisions?

Key Element 5: *Teachers choose appropriate strategies, resources, and materials to differentiate instruction for individuals and groups of students and develop appropriate sequencing of learning experiences.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How have the developmental level and needs of my students influenced my plans for instruction?

B. What criteria do I use to select appropriate and challenging materials and media that are closely aligned with my instructional goals?

C. How do I ensure that my lessons are clear, logical, and sequential?

Key Element 6: *Teachers collaborate with colleagues within and across content areas and grade levels to select and create learning experiences that are appropriate for curriculum goals, based on school improvement plans, relevant to learners, and based on principles of effective instruction.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How often do I meet with my content area/grade level colleagues to discuss my instructional plans?

B. How might I collaborate with colleagues within and across content areas/grade levels to ensure my instructional plans are appropriate for the curriculum goals of my subject and grade level and the school and division?

C. How am I sharing my instructional plans with others?

Standard Three: Instructional Delivery

Teachers effectively engage students in learning by using a variety of instructional strategies in order to meet individual learning needs.

Key Element 1: *Teachers differentiate instruction to accommodate the learning needs of all students.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. What sort of teaching strategies do I use to accommodate the diverse learning needs of my students?

B. What opportunities have I provided for students to explore concepts in varying degrees of depth, breadth, and complexity?

C. How do I build on my students' strengths while developing all areas of competence?

D. What adaptations have I made to provide individuals with additional support while addressing the pacing of instruction for my students as a whole?

E. How have I collaborated with resource teachers to provide materials, resources, and activities to match the abilities of my students with special learning needs?

Key Element 2: *Teachers implement, evaluate, and adapt multiple delivery methods and instructional strategies to actively engage students in learning and enhance student learning.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. What kind of opportunities do I provide for students to interact with ideas, materials, teachers, and one another?

B. How do I vary my role in the instructional process (e.g., instructor, facilitator, coach, audience) in relation to content and purposes of instruction and the needs of students?

C. How do I effectively structure questions to solicit comments, questions, examples, and feedback from students throughout my lessons?

D. What kind of activities do I use to provide guided and independent practice?

E. What do I do to encourage my students to ask questions and actively participate in class?

F. What do I do to encourage students to reflect on and assume responsibility for learning?

G. How do the materials and activities I select promote independent thinking and develop problem-solving skills among my students?

H. How do I foster academic curiosity and critical thinking in my students?

I. How do I use new and emerging technologies to support and promote student learning?

J. What do I do to foster student expression in speaking, writing, and other media?

Key Element 3: *Teachers communicate clearly and regularly check for understanding.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How does my use of standard English, including correct vocabulary and grammar, positively impact my students' learning?

B. How can I determine that I am communicating clear and concise learning goals, explanations, and directions to my students?

C. What techniques do I use to model effective communication as I convey ideas and information?

D. What do I do to monitor student understanding on an ongoing basis?

Key Element 4: *Teachers know when and how to access and integrate resources to support student learning (e.g., field and educational experts, exceptional education specialists, language learner specialists, community organizations).*

As teachers reflect on this key element, they may ask themselves the following questions:

A. What school and community resources are available to help support student learning?

B. Which of my students need additional support to be successful and where might I seek this support?

Standard Four: Assessment of and for Student Learning

Teachers systematically gather, analyze, and use all relevant data to measure student academic progress, guide instructional content and delivery methods, and provide timely feedback to both students and parents throughout the school year.

Key Element 1: *Teachers work independently and collaboratively to analyze and interpret multiple sources of data to identify student learning needs, to guide planning and instruction, and to assess the effectiveness of instruction.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How do my instructional goals reflect individual student and school data available to me?

B. How do I design, adapt, or select appropriate assessments to address specific learning goals and individual differences?

C. What additional data do I need to effectively differentiate instruction in my classroom and how might I get these data?

D. What does the data tell me about the effectiveness of my instruction?

Key Element 2: *Teachers communicate specific performance expectations and use a variety of assessment strategies to monitor and document student progress and to provide meaningful feedback to students and parents.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How do I ensure that my expectations for learning are communicated clearly to students and parents?

B. How do I ensure that my students, parents, and colleagues understand how I assess and report student progress?

C. What strategies do I use to prepare my students for the Virginia Standards of Learning tests and other standardized testing?

D. How do I determine if I am using a variety of assessments that align with the concepts and skills I have taught?

E. What criteria do I use to determine how I will assess my students' work?

Key Element 3: *Teachers engage students in understanding, identifying, and assuming responsibility for quality work and provide them with timely, frequent, and effective feedback to guide their progress toward that work.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. What value does my feedback have in helping students improve and progress?

B. How do I model processes that guide students in assessing their own learning as well as the performance of others?

C. How quickly and frequently am I providing feedback to my students?

Key Element 4: *Teachers set measureable and appropriate learning goals for students based on baseline data and accept responsibility for students achieving those goals.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How do I use the results of student assessments to evaluate and adjust my teaching?

B. How well am I preparing my students for the demands of various assessment formats?

C. What modifications of assessment formats and testing conditions do I make for English language learners, students with disabilities, and students who are above grade level?

D. How do I know if I am an effective teacher?

Standard Five: Learning Environment

Teachers use resources, routines, and procedures to provide a respectful, positive, safe, student-centered environment that is conducive to learning.

Key Element 1: *Teachers create a safe and positive learning environment.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How have I engaged students in developing and monitoring shared expectations for respectful interactions, thoughtful academic discussions, and individual and group responsibility for the learning environment in our classroom?

B. How do I ensure that my expectations for student behavior are communicated clearly to students, parents, and the community?

C. How do I ensure fairness and consistency in implementing disciplinary procedures?

D. What do I do to promote self-discipline and conflict resolution skills among my students?

E. How do I recognize and celebrate the achievements of my students?

Key Element 2: *Teachers manage classroom procedures to maximize academic learning time to ensure continuous student engagement in learning.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How does my organization of my classroom support learning and safety and minimize disruptions?

B. How do classroom rules and procedures maximize efficient use of my students' and my own time and effort?

C. How can I determine that I have engaged students' attention? What strategies do I use to recapture or refocus students' attention?

Key Element 3: *Teachers develop and maintain rapport with students.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. What steps do I take to ensure that my interactions with students are respectful?

B. How do I convey my personal enthusiasm for learning?

C. How do I model caring, fairness, a sense of humor, courtesy, respect, and active listening for my students?

D. How do I demonstrate concern for students' emotional and physical well-being?

E. How do I incorporate information about students' interests and opinions in my interactions with students?

Key Element 4: *Teachers create for all students a respectful, supportive learning environment that encourages social interaction, active engagement in learning, and self-motivation.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How do I encourage students to respect themselves and others?

B. How do I clearly communicate my expectations for appropriate interactions among students?

C. What do I do to encourage students to take pride in their work?

D. How do I enhance my students' feelings of self-worth?

E. How do I know that my treatment of students is fair and equitable?

F. How do I promote multicultural awareness, gender sensitivity, and the appreciation for diversity among my students?

Key Element 5: *Teachers collaborate with colleagues to develop consistent policies and procedures that create a school culture conducive to learning.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How do I work with my colleagues to ensure that the policies and practices in our classrooms contribute to a consistent and positive school culture that is conducive to learning?

B. How are we demonstrating to students that the adults in the building share a common vision and goals for their behavior and their learning?

Standard Six: Professionalism

Teachers maintain a commitment to professional ethics, communicate effectively, and take responsibility for and participate in professional growth that results in enhanced student learning.

Key Element 1: *Teachers work in partnership with families to promote student learning at home and in the school.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. What forms of communication do I use to initiate and maintain effective communication with parents or guardians?

B. What do I do to encourage parents to participate in their child's learning in and out of the classroom?

C. How do I share major instructional goals and report student progress and problems in a timely manner?

D. What strategies have I offered parents to enable them to assist in their children's education?

Key Element 2: *Teachers collaborate with administrators, colleagues, families, and community members to promote and support student success.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How do I encourage and support parental and community involvement in school activities?

B. How has my collaboration with administrators and colleagues led to better coordination and integration of learning goals and standards across classrooms and grade levels?

C. What do I do to support community partnerships that enhance learning?

D. How can I foster understanding and cooperation between school and community?

E. How do I work with administrators and colleagues in all subject areas to reinforce literacy skills and processes across the curriculum?

Key Element 3: *Teachers model professional and ethical standards as well as personal integrity in all interactions.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How do I relate to administrators, colleagues, parents, and others in a manner that is clearly ethical and professional?

B. How do I attempt to resolve concerns and problems in a principled and constructive manner?

C. How do I represent the school/program in a responsible and productive manner within the community?

D. How will my personal appearance and demeanor reflect on me and my profession?

E. How do I work with others in the best interest of students, schools, and community?

Key Element 4: *Teachers respect the privacy of students, families, colleagues, and administrators with whom they work, ensuring confidentiality of all sensitive information.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. What information about my students and their families do I need to keep confidential to ensure their privacy?

B. How do I build an atmosphere of trust, mutual respect, and openness with colleagues?

C. How do I model discretion in all interactions with students, parents, colleagues, and administrators?

Key Element 5: *Teachers continually reflect on, evaluate, and seek to improve their practice.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. What self-assessment and problem-solving strategies do I use to reflect on my practice?

B. How do I learn about new research on teaching and resources that are available for my professional learning?

C. What am I doing to develop and refine my teaching practices to meet the needs of my students?

D. How do I demonstrate that I am a self-directed learner who values critical thinking?

E. How do I incorporate reflection, self-assessment, and learning as part of my ongoing process of professional growth?

F. How can classroom observation, student information, and research help me assess and revise my practice?

G. How often do I engage in reflection, problem solving, and sharing new ideas and experiences with professional colleagues within the school and other professional arenas?

Key Element 6: *Teachers take responsibility for and participate in a meaningful and continuous process of professional development.*

As teachers reflect on this key element, they may ask themselves the following questions:

A. How will my participation in professional development activities benefit student learning?

B. How can I identify my strengths and weaknesses in order to set appropriate goals for my professional growth?

C. How do I learn about new developments and techniques, including technology, in my content area(s)?

Key Element 7: *Teachers demonstrate consistent mastery of standard oral and written English in all communication.*

As teachers reflect on this key element, they may ask themselves the following question:

Do I effectively use standard oral and written English in all communications?

Appendix E
Teachers' Sense of Efficacy Scale Long Form
(Tschannen-Moran & Woolfolk Hoy, 2001)

Teacher Beliefs - TSES

This questionnaire is designed to help us gain a better understanding of the kinds of things that create challenges for teachers. Your answers are confidential.

Directions: Please indicate your opinion about each of the questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A Great Deal" as each represents a degree on the continuum.

Please respond to each of the questions by considering the combination of your *current* ability, resources, and opportunity to do each of the following in your present position.

	None at all		Very Little		Some Degree		Quite A Bit		A Great Deal
1. How much can you do to get through to the most difficult students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to help your students think critically?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you make your expectations clear about student behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How well can you respond to difficult questions from your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How much can you do to foster student creativity?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
13. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
14. How much can you do to improve the understanding of a student who is failing?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17. How much can you do to adjust your lessons to the proper level for individual students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
18. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
19. How well can you keep a few problem students form ruining an entire lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
20. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21. How well can you respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
22. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
23. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24. How well can you provide appropriate challenges for very capable students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Appendix F
Post-Treatment Interview Protocol

Outcomes:

1. Did participating in video-based reflection help you as a beginning teacher? If so, how?
2. Did the use of video impact your reflection and analysis? If so, how?
3. Did you notice changes in your teaching over the three months? If so, please describe those changes.
4. Did you notice changes in your reflection and analysis over the three months? If so, please describe them.
5. Did participation in this activity change anything about the way you think of yourself as a teacher?

Process:

6. Was there anything challenging about participating in this process? If so, what?
7. Describe your experience of using the technology provided for this activity.
8. If we were to repeat this for additional beginning teachers, what might we change to improve their experience?

Biography

Janene K. Gorham serves as the director of the Office of Professional Learning and Innovation for Virginia Beach City Public Schools. Her primary responsibilities focus on organization and individual capacity building to support strategic improvement and innovation. She has served twenty three years as an educator and leader, beginning her career teaching fifth grade, transitioning to a school-based technology integration specialist, and advancing to district leadership positions as an instructional technology coordinator and then the director of the Center for Teacher Leadership before assuming her current role.

Janene graduated from the University of Virginia in 1993 with a Bachelor of Arts in history and a Masters of Teaching, with a concentration in elementary education. She returned to the University of Virginia to earn an endorsement in K-12 administration. At Johns Hopkins University, her doctoral program concentration was Entrepreneurial Leadership in Education culminating in a dissertation, Video-Based Reflection of Beginning Teachers: An Induction Strategy to Promote Teaching Efficacy.